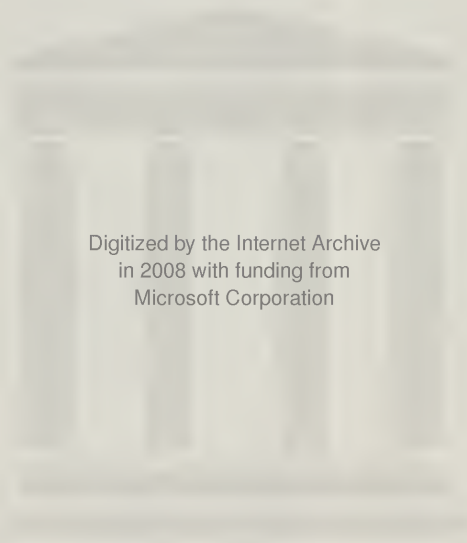
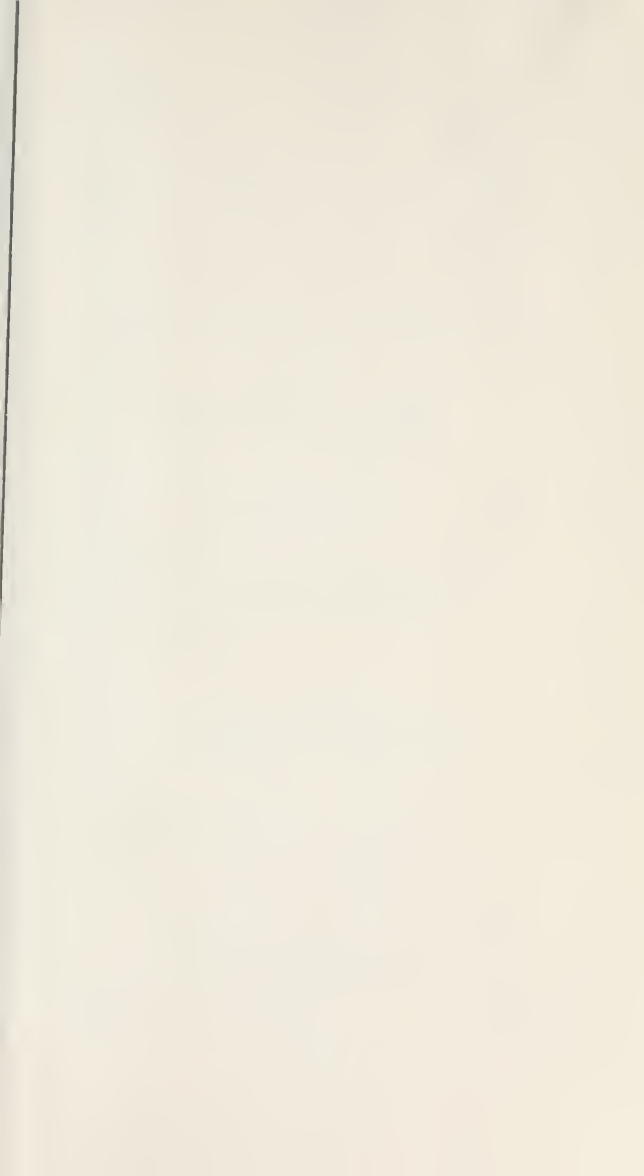




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A HISTORY OF THE EARTH
AND ANIMATED NATURE.

BY OLIVER GOLDSMITH.

WITH COPIOUS NOTES;

And an Appendix,

CONTAINING EXPLANATIONS OF TECHNICAL TERMS, AND AN OUTLINE OF
THE CUVIERIAN AND OTHER SYSTEMS,

BY

CAPTAIN THOMAS BROWN,

F.L.S., M.W.S., M.K.S.

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TO WHICH IS SUBJOINED

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PRESIDENT OF THE ROYAL PHYSICAL SOCIETY.



Drawn by W. Scott.

Engr'd by R. Scott

VOL. III.

GLASGOW;
ARCHIBALD FULLARTON & CO.
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A HISTORY OF BIRDS.

BOOK I. OF BIRDS IN GENERAL.

CHAP. I. INTRODUCTION.

WE are now come to a beautiful and loquacious race of animals, that embellish our forests, amuse our walks, and exclude solitude from our most shady retirements. From these man has nothing to fear; their pleasures, their desires, and even their animosities, only serve to enliven the general picture of nature, and give harmony to meditation.

No part of nature appears destitute of inhabitants. The woods, the waters, the depths of the earth, have their respective tenants; while the yielding air, and those tracts of seeming space where man never can ascend, are also passed through by multitudes of the most beautiful beings of the creation.

Every order and rank of animals seems fitted for its situation in life; but none more apparently than birds: they share, in common with the stronger race of quadrupeds, the vegetable spoils of the earth; are supplied with swiftness, to compensate for their want of force; and have a faculty of ascending into the air, to avoid that power which they cannot oppose.

The bird seems formed entirely for a life of escape; and every part of the anatomy of the animal seems calculated for swiftness. As it is designed to rise upon air, all its parts are proportionably light, and expand a large surface without solidity.

In a comparative view with man, their formation seems much

ruder and more imperfect; and they are in general found incapable of the docility even of quadrupeds. Indeed, what degree of sagacity can be expected in animals whose eyes are almost as large as their brain? However, though they fall below quadrupeds in the scale of nature, and are less imitative of human endowments; yet they hold the next rank, and far surpass fishes and insects, both in the structure of their bodies and in their sagacity.

As in mechanics the most curious instruments are generally the most complicated, so it is in anatomy. The body of man presents the greatest variety upon dissection; quadrupeds, less perfectly formed, discover their defects in the simplicity of their conformation; the mechanism of birds is still less complex; fishes are furnished with fewer organs still; whilst insects, more imperfect than all, seem to fill up the chasm that separates animal from vegetable nature. Of man, the most perfect animal, there are but three or four species; of quadrupeds, the kinds are more numerous; birds are more various still; fishes yet more; but insects afford so very great a variety, that they elude the search of the most inquisitive pursuer.

Quadrupeds, as was said, have some distant resemblance in their internal structure with man; but that of birds is entirely dissimilar. As they seem chiefly formed to inhabit the empty regions of air, all their parts are adapted to their destined situation. It will be proper, therefore, before I give a general history of birds, to enter into a slight detail of their anatomy and conformation.

As to their external parts, they seem surprisingly adapted for swiftness of motion. The shape of their body is sharp before, to pierce and make way through the air; it then rises by a gentle swelling to its bulk, and falls off in an expansive tail, that helps to keep it bonyant, while the fore-parts are cleaving the air by their sharpness. From this conformation, they have often been compared to a ship making its way through water; the trunk of the body answers to the hold, the head to the prow, the tail to the rudder, and the wings to the oars; from whence the poets have adopted the metaphor of *remigium alarum*, when they described the wavy motion of a bird in flight.

What we are called upon next to admire in the external formation of birds is the neat position of the feathers, lying all one

way, answering at once the purposes of warmth, speed, and security. They mostly tend backward, and are laid over one another in an exact and regular order, armed with warm and soft down next the body, and more strongly fortified, and curiously closed externally, to fence off the injuries of the weather. But, lest the feathers should spoil by their violent attrition against the air, or imbibe the moisture of the atmosphere, the animal is furnished with a gland behind, containing a proper quantity of oil, which can be pressed out by the bird's bill, and laid smoothly over every feather that wants to be dressed for the occasion. This gland is situated on the rump, and furnished with an opening or excretory duct; about which grows a small tuft of feathers somewhat like a painter's pencil. When therefore, the feathers are shattered or rumpled, the bird, turning its head backwards, with the bill catches hold of the gland, and, pressing it, forces out the oily substance, with which it anoints the disjointed parts of the feathers; and drawing them out with great assiduity, recomposes and places them in due order; by which they unite more closely together. Such poultry, however, as live for the most part under cover, are not furnished with so large a stock of this fluid, as those birds that reside in the open air. The feathers of a hen, for instance, are pervious to every shower; on the contrary, swans, geese, ducks, and all such as Nature has directed to live upon the water, have their feathers dressed with oil from the very first day of their leaving the shell. Thus their stock of fluid is equal to the necessity of its consumption. Their very flesh contracts a flavour from it, which renders it in some so very rancid, as to make it utterly unfit for food; however, though it injures the flesh, it improves the feathers for all the domestic purposes to which they are usually converted.

Nor are the feathers with which birds are covered less an object of admiration. The shaft of every feather is made proportionably strong; but hollow below for strength and lightness, and above filled with a pith to feed the growth of the vane or beard that springs from the shaft of the feather on either side. All the feathers are placed generally according to their length and strength, so that the largest and strongest feathers in flight have the greatest share of duty. The vane or beard of the feather is formed with equal contrivance and care. It consists not of one continued membrane, because, if this were broken,

it could not easily be repaired; but it is composed of many layers, each somewhat in itself resembling a feather, and lying against each other in close conjunction. Towards the shaft of the feather, these layers are broad, and of a semicircular form, to serve for strength, and for the closer grafting them one against the other when in action. Towards the outer part of the vane, these layers grow slender and taper, to be more light. On their under-side they are thin and smooth, but their upper outer-edge is parted into two hairy edges, each side having a different sort of hairs, broad at bottom, and slender and bearded above. By this mechanism, the hooked beards of one layer always lie next the straight beards of the next, and by that means lock and hold each other.

The next object that comes under consideration, in contemplating an animal that flies, is the wing, the instrument by which this wonderful progression is performed. In such birds that fly, they are usually placed at that part of the body which serves to poise the whole, and support it in a fluid that at first seems so much lighter than itself. They answer to the fore-legs in quadrupeds, and at the extremity of this they have a certain finger-like appendix, which is usually called the *bastard-wing*. This instrument of flight is furnished with quills, which differ from the common feathers only in their size being larger, and also from their springing from the deeper part of the skin, their shafts lying almost close to the bone. The beards of these quills are broad on one side and more narrow on the other, both which contribute to the progressive motion of the bird, and the closeness of the wing. The manner in which most birds avail themselves of these, is first thus: they quit the earth with a bound, in order to have room for flapping with the wing; when they have room for this, they strike the body of air beneath the wing with a violent motion, and with the whole under surface of the same; but then to avoid striking the air with equal violence on the upper side as they rise, the wing is instantly contracted; so that the animal rises by the impulse, till it spreads the wing for a second blow. For this reason we always see the birds choose to rise against the wind, because they have thus a greater body of air on the under than the upper side of the wing. For these reasons also large fowls do not rise easily; both because they have not sufficient room at first for the motion of their wings,

and because the body of air does not lie so directly under the wing as they rise.

In order to move the wings, all birds are furnished with two very strong pectoral muscles, which lie on each side of the breast-bone. The pectoral muscles of quadrupeds, are trifling in comparison to those of birds. In quadrupeds, as well as in man, the muscles which move the thighs and hinder parts of the body are by far the strongest, while those of the arms are feeble : but in birds, which make use of their wings, the contrary obtains ; the pectoral muscles, that move the wings or arms, are of enormous strength, while those of the thighs are weak and slender. By means of these, a bird can move its wings with a degree of strength, which, when compared to the animal's size, is almost incredible. The flap of a swan's wing would break a man's leg ; and a similar blow from an eagle has been known to lay a man dead in an instant. Such, consequently, is the force of the wing, and such its lightness, as to be inimitable by art. No machines, that human skill can contrive, are capable of giving such force to so light an apparatus. The art of flying, therefore, that has so often and so fruitlessly been sought after, must, it is feared, for ever be unattainable ; since as man increases the force of his flying machine, he must be obliged to increase its weight also.

In all birds, except nocturnal ones, the head is smaller, and bears less proportion to the body than in quadrupeds, that it may more readily divide the air in flying, and make way for the body, so as to render its passage more easy. Their eyes also are more flat and depressed than in quadrupeds ; a circle of small plates of bone, placed scalewise, under the outer coat of the organ, encompasses the pupil on each, to strengthen and defend it from injuries. Besides this, birds have a kind of skin, called the nictitating membrane, with which, like a vail, they can at pleasure cover their eyes, though their eye-lids continue open. This membrane takes its rise from the greater or more obtuse corner of the eye, and serves to wipe, cleanse, and probably to moisten its surface. The eyes, though they outwardly appear but small, yet separately, each almost equals the brain ; whereas in man the brain is more than twenty times larger than the orbit of the eye. Nor is this organ in birds less adapted for vision by a particular expansion of the optic nerve, which

renders the impressions of external objects more vivid and distinct.

From this conformation of the eye it follows, that the sense of seeing in birds, is infinitely superior to that of other animals. Indeed this piercing sight seems necessary to the creature's support and safety. Were this organ blunter, from the rapidity of the bird's motion, it would be apt to strike against every object in its way; and it could scarcely find subsistence unless possessed of a power to discern its food from above with astonishing sagacity. A hawk for instance, perceives a lark at a distance, which neither men nor dogs could spy; a kite from an almost imperceptible height in the clouds, darts down on its prey with the most unerring aim. The sight of birds, therefore, exceeds what we know in most other animals, and excels them both in strength and precision.

All birds want the external ear standing out from the head; they are only furnished with holes that convey sounds to the auditory canal. It is true, indeed, that the horned owl, and one or two more birds, seem to have external ears; but what bears that resemblance are only feathers sticking out on each side of the head, but no way necessary to the sense of hearing. It is probable, however, that the feathers encompassing the ear-holes in birds supply the defect of the exterior ear, and collect sounds to be transmitted to the internal sensory. The extreme delicacy of this organ is easily proved by the readiness with which birds learn tunes, or repeat words, and the great exactness of their pronounciation.

The sense of smelling seems not less vivid in the generality of birds. Many of them *wind* their prey at an immense distance, while others are equally protected by this sense against their insidious pursuers. In decoys where ducks are caught, the men who attend them universally keep a piece of turf burning near their mouths, upon which they breathe, lest the fowl should smell them, and consequently fly away. The universality of this practice puts the necessity of it beyond a doubt, and proves the extreme delicacy of the sense of smelling, at least in this species of the feathered creation.

Next to the parts for flight, let us view the legs and feet ministering to motion. They are both made light, for the easier transportation through the air. The toes in some are webbed

to fit them for the waters ; in others they are separate, for the better holding objects, or clinging to trees for safety. Such as have long legs have also long necks, as otherwise they would be incapable of gathering up their food either by land or water. But it does not hold, however, that those who have long necks should have long legs, since we see that swans and geese, whose necks are extremely long, have very short legs, and these chiefly employed in swimming.

Thus every external part, hitherto noticed, appears adapted to the life and situation of the animal ; nor are the inward parts, though less immediately appropriated to flight, less necessary to safety. The bones of every part of the body are extremely light and thin ; and all the muscles, except that immediately moving the wings, extremely slight and feeble. The tail, which is composed of quill feathers, serves to counterbalance the head and neck ; it guides the animal's flight like a rudder, and greatly assists it either in its ascent or when descending.

If we go on to examine birds internally, we shall find the same wonderful conformation fitting them for a life in air, and increasing the surface by diminishing the solidity. In the first place, their lungs, which are commonly called the *sole*, stick fast to the sides of the ribs and back, and can be very little dilated or contracted. But to make up for this, which might impede their breathing, the ends of the branches of the windpipe open into them, while these have openings into the cavity of the belly, and convey the air drawn in by breathing into certain receptacles like bladders, running along the length of the whole body. Nor are these openings obscure, or difficult to be discerned ; for a probe thrust into the lungs of a fowl will easily find a passage into the belly ; and air blown into the windpipe will be seen to distend the animal's body like a bladder. In quadrupeds this passage is stopped by the midriff ; but in fowls the communication is obvious ; and consequently, they have a much greater facility of taking a long and large inspiration. It is sometimes also seen that the windpipe makes many convolutions within the body of a bird, and it is then called the *labyrinth* ; but of what use these convolutions are, or why the windpipe should make so many turnings within the body of some birds, is a difficulty for which no naturalist has been able to account.

This difference of the windpipe often obtains in animals that,

to all appearance, are of the same species. Thus in the tame swan, the windpipe makes but a straight passage into the lungs ; while in the wild swan, which to all external appearance seems the same animal, the windpipe pierces through the breast-bone, and there has several turnings before it comes out again, and goes to enter the lungs. It is not to form the voice that these turnings are found, since the fowls that are without them are vocal ; and those, particularly the bird just now mentioned, that have them, are silent. Whence, therefore, some birds derive that loud and various modulation in their warblings, is not easily to be accounted for ; at least the knife of the anatomist goes but a short way in the investigation. All we are certain of is, that birds have much louder voices, in respect to their bulk, than animals of any other kind ; for the bellowing of an ox is not louder than the scream of a peacock.

In these particulars, birds pretty much resemble each other in their internal conformation ; but there are some varieties which we should more attentively observe. All birds have, properly speaking, but one stomach ; but this is very different in different kinds. In all the rapacious kinds that live upon animal food, as well as in some of the fish-feeding tribe, the stomach is peculiarly formed. The *œsophagus*, or gullet, in them, is found replete with glandulous bodies, which serve to dilate and macerate the food, as it passes into the stomach, which is always very large in proportion to the size of the bird, and generally wrapped round with fat, in order to increase its warmth and powers of digestion.

Granivorous birds, or such as live upon fruits, corn, and other vegetables, have their intestines differently formed from those of the rapacious kind. Their gullet dilates just above the breast bone, and forms itself into a pouch or bag, called the crop. This is replete with salivary glands, which serve to moisten and soften the grain and other food which it contains. These glands are very numerous, with longitudinal openings, which emit a whitish and a viscous substance. After the dry food of the bird has been macerated for a convenient time, it then passes into the belly, where, instead of a soft moist stomach, as in the rapacious kinds, it is ground between two pair of muscles, commonly called the gizzard, covered on the inside with a stony ridgy coat, and almost cartilaginous. These coats rubbing against

each other, are capable of bruising and attenuating the hardest substances, their action being often compared to that of the grinding teeth in man and other animals. Thus the organs of digestion are in a manner reversed in birds. Beasts grind their food with their teeth, and then it passes into the stomach, where it is softened and digested. On the contrary, birds of this sort first macerate and soften it in the crop, and then it is ground and comminuted in the stomach or gizzard. Birds are also careful to pick up sand, gravel, and other hard substances, not to grind their food as has been supposed, but to prevent the too violent action of the coats of the stomach against each other.

Most birds have two appendices, or blind-guts, which, in quadrupeds, are always found single. Among such birds as are thus supplied, all carnivorous fowl, and all birds of the sparrow kind, have very small and short ones; water-fowl and birds of the poultry kind, the longest of all. There is still another appendix observable in the intestines of birds, resembling a little worm, which is nothing more than the remainder of that passage by which the yolk was conveyed into the guts of the young chicken, while yet in the egg and under incubation.

The outlet of that duct which conveys the bile into the intestines is, in most birds, a great way distant from the stomach; which may arise from the danger there would be of the bile regurgitating into the stomach in their various rapid motions, as we see in men at sea; wherefore their biliary duct is so contrived, that this regurgitation cannot take place.

All birds, though they want a bladder for urine, have large kidneys and ureters, by which this secretion is made, and carried away by one common canal. "Birds," says Harvey, "as well as serpents, which have spongy lungs, make but little water, because they drink but little. They therefore have no need of a bladder; but their urine distils down into the common canal, designed for receiving the other excrements of the body. The urine of birds differs from that of other animals: for, as there is usually in urine two parts, one more serous and liquid, the other more thick and gross, which subsides to the bottom; in birds, the last part is most abundant, and is distinguished from the rest by its white or silver colour. This part is found not only in the whole intestinal canal, but is seen also in the whole channel of the ureters, which may be distinguished from the coats

of the kidneys by their whiteness. This milky substance they have in greater plenty than the more thin and serous part; and it is of a middle consistence, between limpid urine and the grosser parts of the fæces. In passing through the ureters it resembles milk curdled or lightly condensed: and being cast forth, easily congeals into a chalky crust."

From this simple conformation of the animal, it should seem that birds are subject to few diseases; and in fact, they have but few. There is one, however, which they are subject to, from which quadrupeds are, in a great measure, exempt; this is the annual moulting which they suffer; for all birds whatsoever obtain a new covering of feathers once a year, and cast the old. During the moulting season, they ever appear disordered; those most remarkable for their courage, then lose all their fierceness; and such as are of a weakly constitution, often expire under this natural operation. No feeding can maintain their strength; they all cease to breed at this season; that nourishment which goes to the production of the young is wholly absorbed by the demand required for supplying the nascent plumage.

This moulting time, however, may be artificially accelerated, and those who have the management of singing birds frequently put their secret in practice. They enclose the bird in a dark cage, where they keep it excessively warm, and throw the poor little animal into an artificial fever; this produces the moult; his old feathers fall before their time, and a new set take place, more brilliant and beautiful than the former. They add, that it mends the bird's singing, and increases its vivacity; but it must not be concealed, that scarcely one bird in three survives the operation.

The manner in which nature performs this operation of moulting is thus: the quill, or feather, when first protruded from the skin, and come to its full size, grows harder as it grows older, and receives a kind of periosteum or skin round the shaft, by which it seems attached to the animal. In proportion as the quill grows older, its sides, or the bony part, thicken; but its whole diameter shrinks and decreases. Thus, by the thickening of its sides, all nourishment from the body becomes more sparing; and, by the decrease of its diameter, it becomes more loosely fixed in its socket, till at length it falls out. In the meantime the rudiments of an incipient quill are beginning be-

low. The skin forms itself into a little bag, which is fed from the body by a small vein and artery, and which every day increases in size till it is protruded. While the one end vegetates into the beard or vane of the feather, that part attached to the skin is still soft, and receives a constant supply of nourishment, which is diffused through the body of the quill by that little light substance which we always find within when we make a pen. This substance which as yet has received no name that I know of, serves the growing quill as the umbilical artery does an infant in the womb, by supplying it with nourishment, and diffusing that nourishment over the whole frame. When, however, the quill is come to its full growth, and requires no further nourishment, the vein and artery become less and less, till at last the little opening by which they communicated with the quill becomes wholly obliterated; and the quill, thus deprived, continues in its socket for some months, till in the end it shrinks, and leaves room for a repetition of the same process of nature as before.

The moulting season commonly obtains from the end of summer to the middle of autumn. The bird continues to struggle with this malady during the winter; and nature has kindly provided, that when there are the fewest provisions, that then the animal's appetite shall be least craving. At the beginning of spring, when food begins again to be plentiful, the animal's strength and vigour return. It is then that the abundance of provisions, aided by the mildness of the season, incite it to love, and all nature seems teeming with life, and disposed to continue it.

CHAP. II.

OF THE GENERATION, NESTLING, AND INCUBATION, OF BIRDS.

THE return of spring is the beginning of pleasure. Those vital spirits, which seem locked up during the winter, then begin to expand; vegetables and insects supply abundance of food; and the bird having more than a sufficiency for its own subsistence, is impelled to transfuse life, as well as to maintain it. Those warblings, which had been hushed during the colder

seasons, now begin to animate the fields ; every grove and bush resounds with the challenge of anger, or the call of allurements. This delightful concert of the grove, which is so much admired by man, is no way studied for his amusement ; it is usually the call of the male to the female, his efforts to soothe her during the times of incubation ; or it is a challenge between two males, for the affections of some common favourite.

It is by this call that birds begin to pair at the approach of spring, and provide for the support of a future progeny. The loudest notes are usually from the male, while the hen seldom expresses her consent but in a short interrupted twittering. This compact, at least for the season, holds with unbroken faith ; many birds live with inviolable fidelity together for a constancy ; and when one dies, the other is always seen to share the same fate soon after. We must not take our idea of the conjugal fidelity of birds from observing the poultry in our yards, whose freedom is abridged, and whose manners are totally corrupted by slavery. We must look for it in our fields and our forests, where nature continues in unadulterated simplicity ; where the number of males is generally equal to that of females ; and where every little animal seems prouder of his progeny, than pleased with his mate. Were it possible to compare sensations, the male of all wild birds seems as happy in the young brood as the female ; and all his former caresses, all his soothing melodies, seem only aimed at that important occasion, when they are both to become parents, and to educate a progeny of their own producing. The pleasures of love appear dull in their effects, when compared to the interval immediately after the exclusion of their young. They both seem at that season transported with pleasure ; every action testifies their pride, their importance, and tender solicitude.

When the business of fecundation is performed, the female then begins to lay. Such eggs as have been impregnated by the cock are prolific ; and such as have not, for she lays often without any congress whatsoever, continue barren and are only addled by incubation. Previous, however, to laying, the work of nestling becomes the common care ; and this is performed with no small assiduity and apparent design. It has been asserted, that birds of one kind always make their nests in the same manner, and of the same materials ; but the truth is, that they vary this as the materials

places, or climates, happen to differ. The red-breast in some parts of England, makes its nest with oak-leaves, where they are in greatest plenty; in other parts with moss and hair. Some birds, that with us make a very warm nest, are less solicitous in the tropical climates, where the heat of the weather promotes the business of incubation. In general, however, every species of birds has a peculiar architecture of its own; and this adapted to the number of eggs, the temperature of the climate, or the respective heat of the little animal's own body. Where the eggs are numerous, it is then incumbent to make the nest warm, that the animal heat may be equally diffused to them all. Thus the wren, and all the small birds, make the nest very warm; for having many eggs, it is requisite to distribute warmth to them in common: on the contrary, the plover, that has but two eggs, the eagle, and the crow, are not so solicitous in this respect, as their bodies are capable of being applied to the small number upon which they sit. With regard to climate, water-fowl, that with us make but a very slovenly nest, are much more exact in this particular in the colder regions of the north. They there take every precaution to make it warm; and some kinds strip the down from their breasts, to line it with greater security.*

* The construction and selected situations of the nests of birds, are as remarkable as the variety of materials employed in them; the same forms, places, and articles, being rarely, perhaps never, found united by the different species, which we should suppose similar necessities would direct to a uniform provision. Birds that build early in the spring seem to require warmth and shelter for their young; and the blackbird and the thrush line their nests with a plaster of loam, perfectly excluding, by these cottage-like walls, the keen icy gales of our opening year; yet should accident bereave the parents of their first hopes, they will construct another, even when summer is far advanced, upon the model of their first erection, and with the same precautions against severe weather, when all necessity for such provision has ceased, and the usual temperature of the season rather requires coolness and a free circulation of air. The house sparrow will commonly build four or five times in the year, and in a variety of situations, under the warm eaves of our houses and our sheds, the branch of the clustered fir, or the thick tall hedge that bounds our garden, &c.; in all which places, and without the least consideration of site or season, it will collect a great mass of straw and hay, and gather a profusion of feathers from the poultry-yard to line its nest. This cradle for its young, whether under our tiles in March or in July, when the parent bird is panting in the common heat of the atmosphere, has the same provisions made to afford warmth to the brood; yet this is a bird that is little affected by any of the extremes of our cli-

In general, however, every bird resorts to hatch in those climates and places where its food is found in greatest plenty ; and always at that season when provisions are in the greatest abundance. The large birds, and those of the aquatic kinds, choose places as remote from man as possible, as their food is

mate. The wood pigeon and the jay, though they erect their fabrics on the tall underwood in the open air, will construct them so slightly, and with such a scanty provision of materials, that they seem scarcely adequate to support their broods, and even their eggs may almost be seen through the loosely connected materials : but the goldfinch, that inimitable spinner, the Arachne of the grove, forms its cradle of fine mosses and lichens, collected from the apple or the pear-tree, compact as a felt, lining it with the down of thistles besides, till it is as warm as any texture of the kind can be, and it becomes a model for beautiful construction. The golden-crested wren, a minute creature perfectly unmindful of any severity in our winter, and which hatches its young in June, the warmer portion of our year, yet builds its most beautiful nest with the utmost attention to warmth ; and in-weaving small branches of moss with the web of the spider, forms a closely compacted texture nearly an inch in thickness, lining it with such a profusion of feathers, that, sinking deep into this downy accumulation, it seems almost lost itself when sitting, and the young when hatched, appear stified with the warmth of their bedding and the heat of their apartment ; while the white throat, the blackcap, and others, which will hatch their young nearly at the same period, or in July require nothing of the kind. A few loose bents and goose-grass, rudely entwined, with perhaps the luxury of some scattered hairs, are perfectly sufficient for all the wants of these ; yet they are birds that live only in genial temperatures, feel nothing of the icy gales that are natural to our pretty indigenous artists, but flit from sun to sun, and we might suppose would require much warmth in our climate during the season of incubation ; but it is not so. The greenfinch places its nest in the hedge with little regard to concealment ; its fabric is slovenly and rude, and the materials of the coarsest kinds ; while the chaffinch, just above it in the elm, hides its nest with cautious care, and moulds it with the utmost attention to order, neatness, and form. One bird must have a hole in the ground ; to another a crevice in the wall, or a chink in a tree, is indispensable. The bullfinch requires fine roots for its nest ; the grey fly-catcher will have cobwebs for the outworks of its shed. All the parus tribe, except the individual above mentioned, select some hollow in a tree or cranny in a wall ; and, sheltered as such places must be, yet will they collect abundance of feathers and warm materials for their infants' bed. Endless examples might be found of the dissimilarity of requirements in these constructions among the several associates of our groves, our hedges, and our houses ; and yet the supposition cannot be entertained for a moment that they are superfluous, or not essential for some purpose with which we are unacquainted. By how many of the ordinations of Supreme Intelligence our ignorance made manifest ? Even the fabrication of the nests of these little animals exceeds our comprehension—we know none of the causes or motives of that unembodied mind that willed them thus.—*Journal of a Naturalist.*

in general different from that which is cultivated by human labour. Some birds which have only the serpent to fear, build their nests depending from the end of a small bough, and form the entrance from below; being thus secured either from the serpent or the monkey tribes. But all the little birds which live upon fruits and corn, and that are too often unwelcome intruders upon the fruits of human industry, in making their nests, use every precaution to conceal them from man. On the other hand, the great birds remote from human society, use every precaution to render theirs inaccessible to wild beasts or vermin.

Nothing can exceed the patience of birds while hatching; neither the calls of hunger, nor the near approach of danger, can drive them from the nest. They are often fat upon beginning to sit, yet before incubation is over, the female is usually wasted to skin and bone. Ravens and crows, while the females are sitting, take care to provide them with food: and this in great abundance. But it is different with most of the smaller kinds: during the whole time, the male sits near his mate upon some tree, and soothes her by his singing; and often when she is tired takes her place, and patiently continues upon the nest till she returns. Sometimes, however, the eggs acquire a degree of heat too much for the purposes of hatching; in such cases, the hen leaves them to cool a little, and then returns to sit with her usual perseverance and pleasure.

So great is the power of instinct, in animals of this class, that they seem driven from one appetite to another, and continue almost passive under its influence. Reason we cannot call it, since the first dictates of that principle would be self-preservation:—"Take a brute," says Addison, "out of his instinct, and you find him wholly deprived of understanding. With what caution," continues he, "does the hen provide herself with a nest in places unfrequented, and free from noise and disturbance! When she has laid her eggs in such a manner that she can cover them, what care does she take in turning them frequently, that all parts may partake of the vital warmth! When she leaves them, to provide for her necessary sustenance, how punctually does she return before they have time to cool, and become incapable of producing an animal! In the summer you see her giving herself greater freedoms, and quitting her care for above two hours together: but in winter when the rigour of the

season would chill the principles of life, and destroy the young one, she grows more assiduous in her attendance, and stays away but half the time. When the birth approaches, with how much nicety and attention does she help the chick to break the prison ! not to take notice of her covering it from the injuries of the weather, providing it with proper nourishment, and teaching it to help itself ; nor to mention her forsaking the nest, if, after the usual time of reckoning, the young one does not make its appearance. A chemical operation could not be followed with greater art or diligence than is seen in the hatching a chick, though there are many birds that show an infinitely greater sagacity : yet at the same time the hen, that has all this seeming ingenuity, (which is indeed absolutely necessary for the propagation of the species,) considered in other respects, is without the least glimmerings of thought or common sense : she mistakes a piece of chalk for an egg, and sits upon it in the same manner ; she is insensible of any increase or diminution in the number of those she lays ; she does not distinguish between her own, and those of another species ; and when the birth appears of never so different a bird, will cherish it for her own. A hen followed by a brood of ducks, shall stand affrighted at the edge of the pond, trembling for the fate of her young, which she sees venturing into so dangerous an element. As the different principle which acts in these different animals cannot be termed reason, so when we call it instinct, we mean something we have no knowledge of. It appears to me the immediate direction of Providence ; and such an operation of the Supreme Being, as that which determines all the portions of matter to their proper centres."

The production of the young, as was said, seems to be the great era of a bird's happiness. Nothing can at that time exceed its spirit and industry : the most timid becomes courageous in the defence of its young. Birds of the rapacious kind, at this season, become more than usually fierce and active. They carry their prey, yet throbbing with life, to the nest, and early accustom their young to habits of slaughter and cruelty. Nor are those of milder natures less busily employed ; the little birds then discontinue their singing, taken up with more important pursuits of common subsistence.

While the young are yet unfledged and continue in the nest,

the old ones take care to provide them with a regular supply ; and, lest one should take all nourishment from the rest, they feed each of the young in their turn. If they perceive that man has been busy with their nest, or has handled the little ones, they abandon the place by night, and provide their brood a more secure, though less commodious, retreat. When the whole family is completely plumed, and capable of avoiding danger by flight, they are then led forth when the weather is fine, and taught the paternal art of providing for their subsistence. They are led to the places where their food lies ; they are shown the method of discovering or carrying it away ; and then led back to the nest, for a day or two longer. At length, when they are completely qualified to shift for themselves, the old ones take them abroad, and leading them to the accustomed places, forsake them for the last time ; and all future connection is ever at an end.

Those birds which are hatched and sent out earliest in the season, are the most strong and vigorous ; those on the other hand, that have been delayed till the midst of summer, are more feeble and tender, and sometimes incapable of sustaining the rigours of the ensuing winter. Birds themselves seem sensible of this difference, and endeavour to produce early in the spring. If, however, their efforts are obstructed by having their nests robbed, or some similar accident, they still persevere in their efforts for a progeny ; and it often happens that some are thus retarded till the midst of winter. What number of eggs any bird can lay in the course of a season, is not ascertained ; but this is true, that such as would have laid but two or three at the most, if their nests be robbed, or their eggs stolen, will lay above ten or twelve. A common hen, if moderately fed, will lay above a hundred from the beginning of spring to the latter end of autumn. In general, however, it obtains, that the smallest and weakest animals are the most prolific, while the strong and rapacious are abridged by sterility. Thus, such kinds as are easily destroyed, are as readily repaired ; and nature, where she has denied the power of resistance, has compensated by the fertility attending procreation.

Birds in general, though they have so much to fear from man and each other, are seldom scared away from their usual haunts. Although they be so perfectly formed for a wandering life, and are supplied with powers to satisfy all their appetites, though

never so remote from the object, though they are so well fitted for changing place with ease and rapidity, yet the greatest number remain contented in the districts where they have been bred, and by no means exert their desires in proportion to their endowments. The rook, if undisturbed, never desires to leave his native grove ; the black-bird still frequents its accustomed hedge ; and the red-breast, though seemingly mild, claims a certain district, from which he seldom moves, but drives out every one of the same species from thence without pity. They are excited to migration by no other motives but those of fear, climate, or hunger. It must be from one of these powerful motives that the birds, which are called birds of passage, every year forsake us for some time, and make their regular and expected returns.

Nothing has more employed the curiosity of mankind than these annual emigrations ; and yet few subjects continue so much involved in darkness. It is generally believed, that the cause of their retreat from these parts of Europe, is either a scarcity of food at certain seasons, or the want of a secure asylum from the persecution of man, during the time of courtship, and bringing up their young. Thus the starling in Sweden, at the approach of winter, finding subsistence no longer in that kingdom, descends every year into Germany ; and the hen-chaffinches of the same country are seen every year to fly through Holland in large flocks, to pass their winter in a milder climate. Others, with a more daring spirit, prepare for journeys that might intimidate even human perseverance. Thus the quails, in spring, forsake the burning heats of Africa for the milder sun of Europe ; and, when they have passed the summer with us, steer their flight back to enjoy in Egypt the temperate air, which then begins to be delightful. This, with them, seems a preconcerted undertaking. They unite together in some open place, for some days before their departure, and, by an odd kind of chattering, seem to debate on the method to proceed. When their plan is resolved upon, they all take flight together, and often appear in such numbers, that to mariners at sea they seem like a cloud that rests upon the horizon. The boldest, strongest, and by far the greatest number, make good their intention ; but many there are, who, not well apprized of their own force for the undertaking, grow weary on the way, and, quite spent by the fatigues of

their flight, drop down into the sea, and sometimes upon deck, thus becoming an easy prey to the mariner.

Of the vast quantity of water-fowl, that frequent our shores, it is amazing to reflect how few are known to breed here. The cause that principally urges them to leave this country, seems to be not merely the want of food, but the desire of a secure retreat. Our country is too populous for birds so shy and timid as the greatest number of these are. When great part of our island was a mere waste, an uncultivated tract of woods and marshes, many species of birds which now migrate remained with us throughout the year. The great heron and the crane, that have now forsaken this country, in former times bred familiarly in our marshes, and seemed to animate our fens. Their nests, like those of most cloven-footed water-fowl, were built on the ground, and exposed to every invader. But as rural economy increased, these animals were more and more disturbed. Before they had little to fear, as the surrounding marsh defended them from all the carnivorous quadrupeds, and their own strength from birds of prey ; but upon the intrusion of man, and by a long series of alarms, they have at length been obliged to seek, during the summer, some lonely habitation, at a safe distance from every destroyer.

Of the numerous tribes of the duck kind, we know of no more than five that breed here ; the tame swan, the tame goose, the sheldrake, the eider duck, and a few of the wild ducks. The rest contribute to form that amazing multitude of water-fowl which annually repair to the dreary lakes and deserts of Lapland from the more southern countries of Europe. In those extensive and solitary retreats, they perform the duties of incubation and nutrition in full security. There are few of this kind that may not be traced to the northern deserts, to countries of lakes, rivers, swamps, and mountains, covered with thick and gloomy forests, that afford shelter during summer to the timid animals, who live there in undisturbed security. In those regions, from the thickness of the forests, the ground remains moist and penetrable during the summer season ; the woodcock, the snipe, and other slender-billed birds, can there feed at ease ; while the web-footed birds find more than sufficient plenty of food from the number of insects, which swarm there to an incredible degree. The days there are long ; and the beautiful meteorous nights

afford them every opportunity of collecting so minute a food, which is probably, of all others, the most grateful. We are not to be astonished, therefore, at the amazing numbers of fowl that descend from these regions at the approach of winter; numbers to which the army of Xerxes was but trifling in comparison; and which Linnæus has observed for eight whole days and nights to cover the surface of the river Calix.

This migration from the north usually begins in September, when they quit their retreats, and disperse themselves over all the southern parts of Europe. It is not displeasing to observe the order of their flight; they generally range themselves in a long line, or they sometimes make their mark angularly, two lines uniting in the centre like the letter V reversed. The bird which leads at the point seems to cleave the air, to facilitate the passage for those which are to follow. When fatigued with this laborious station, it falls back into one of the wings of the file, while another takes its place. With us they make their appearance about the beginning of October, circulate first round our shores, and, when compelled by severe frost, betake themselves to our lakes and rivers. Some, indeed, of the web-footed fowl, of hardier constitutions than the rest, abide the rigour of their northern climate the whole winter; but when the cold reigns there with more than usual severity, they are obliged to seek for more southern skies. They then repair with the rest for shelter to these kingdoms; so that the diver, the wild swan, and the swallow-tailed sheldrake, visit our coasts but seldom, and that only when compelled by the severity of their winters at home.

It has often been a subject of astonishment, how animals to all appearance so dull and irrational should perform such long journeys, should know whither to steer, and when to set out upon such a great undertaking. It is probable that the same instinct which governs all their other actions operates also here. They rather follow the weather than the country; they steer only from colder or warmer climates into those of an opposite nature; and finding the variations of the air as they proceed in their favour, go on till they find land to repose on. It cannot be supposed that they have any memory of the country where they might have spent a former winter; it cannot be supposed that they see the country to which they travel, from their height in the air; since, though they mounted for miles, the convexity of the globe would

intercept their view : it must therefore only be, that they go on as they continue to perceive the atmosphere more suitable to their present wants and dispositions.*

All this seems to be pretty plain : but there is a circumstance attending the migration of swallows which wraps this subject in great obscurity. It is agreed on all hands, that they are seen migrating into warmer climates, and that in amazing numbers, at the approach of the European winter. Their return into Europe is also as well attested about the beginning of summer ; but we have another account, which serves to prove that numbers of them continue torpid here during the winter, and, like bats, make their retreat into old walls, the hollow of trees, or even sink into the deepest lakes, and find security for the winter season by remaining there in clusters at the bottom. However this latter circumstance may be, their retreat into old walls is too well authenticated to remain a doubt at present. The difficulty, therefore, is to account for this difference in these animals thus variously preparing to encounter the winter. It was supposed that in some of them the blood might lose its motion by the cold, and that thus they were rendered torpid by the severity of the season ; but Mr Buffon having placed many of this tribe in an ice-house, found that the same cold by which their blood was congealed was fatal to the animal ; it remains, therefore, a doubt to this hour, whether there may not be a species of swallows to all external appearance like the rest, but differently formed within, so as to fit them for a state of insensibility during the winter here. It was suggested, indeed, that the swallows found thus torpid, were such only as were too weak to undertake the migration, or were hatched too late to join the general convoy ; but it was upon these that Mr Buffon tried his experiment ; it was these that died under the operation.†

* By attaching a silken thread to their leg, it has been well ascertained that swallows return to their former haunts.

† The analogy between birds of passage, and animals which remain in a state of torpidity during the winter, does not appear to be accurately drawn by our author : the following are the objections to the supposed constitutional connexion. Those quadrupeds, reptiles, and insects, which pass the winter in a state of insensibility, may be recalled to sensation and action at pleasure, by the application of a gentle degree of warmth. Philosophers have been induced, from this constitutional singularity of these animals, to conclude unanimously, that the return of spring rouses them from their

Thus there are some birds which, by migrating, make an habitation of every part of the earth ; but in general every climate has birds peculiar to itself. The feathered inhabitants of the temperate zone are but little remarkable for the beauty of their

lethargic state, to enjoy the benefits of the season. And what in some measure seems to give stability to this supposition is, that the animals in question take up their abodes a little below the surface of the soil ; some in the crevices of walls, or interstices of rocks ; and others, such as frogs, female toads, and water-newts, bury themselves in the mud of shallow ponds. In the former of these retreats they are only covered by a thin layer of earth ; and in the latter, by the addition of a shallow sheet of water ; consequently they are re-animated in due season, by the genial rays of the sun, after he has entered the northern half of the ecliptic. Dr Hales has proved by experimental facts, that the bulb of a thermometer buried 16 inches below the earth's surface, stood at 25° of his scale in September, at 16° in October, and at 10° in November, during a severe frost ; from which point it ascended again slowly, and reached 23° in the beginning of April, (old style.) Now the end of September, and beginning of October, is the season the hedgehog, shrew, bat, toad, and frog disappear : and about the middle of April these animals re-appear ; which agrees very well with the variations of temperature of the preceding theory.

The migratory birds of this country are very numerous ; how comes it then that they are never found near the surface of the earth, as is the bat, hedgehog, &c. ? A few solitary facts of birds being found in holes, in old walls, and in the earth, are on record ; but this is by no means a sufficient reason for establishing a theory of their remaining in a state of torpidity during the winter.

The temperature of places situated at great depths below the surface of the land and water, is sufficient objection to the circumstance of birds remaining in a torpid state, during the winter, in solitary caverns, or at the bottom of deep lakes. It is a known fact, that all places situated 80 feet below the surface of the earth, are constantly of the same temperature. Mr Boyle kept a thermometer for a year under a roof of 80 feet in thickness, and found that the liquor in the instrument remained stationary all the time. Dr Withering made a similar experiment on a well 84 feet deep, and found it remained at 49° for the year round. Surely this invariable temperature is inconsistent with the theory of birds remaining in a state of torpidity in deep lakes, or solitary caverns, where the sun has no influence ; for what would call forth their dormant organs into action ? the vernal sun having no influence on places so situated. It is but reasonable to conclude, that cold which kept them benumbed by its sleepy torpor, would evidently perpetuate their slumbers.

This state of torpor is obviously analogous to sleep ; but it differs from sleep in being occasioned solely by temperature.—Hybermating animals always assume this torpid state, whenever the thermometer sinks to a certain point. Almost all animals seem to be susceptible of this state, at least to a certain extent, not even excepting man. For the apparent death produced by cold is probably nothing else but a species of torpor, out of which the animal, in most cases, might be roused, if the requisite caution in ap-

plumage ; but then the smaller kinds make up for this defect by the melody of their voices. The birds of the torrid zone are very bright and vivid in their colours ; but they have screaming voices, or are totally silent. The frigid zone, on the other hand, where the seas abound with fish, are stocked with birds of the aquatic kind, in much greater plenty than in Europe ; and these are generally clothed with a warmer coat of feathers ; or they have large quantities of fat lying underneath the skin, which serves to defend them from the rigours of the climate.

In all countries, however, birds are a more long-lived class of animals than the quadrupeds or insects of the same climate. The life of man himself is but short, when compared to what some of them enjoy. It is said that swans have been known to live three hundred years ; geese are often seen to live four-score ; while linnets and other little birds, though imprisoned in cages, are often found to reach fourteen or fifteen. How birds, whose age of perfection is much more early than that of quadrupeds, should yet live comparatively so much longer, is not easily to be accounted for : perhaps, as their bones are lighter, and more porous than those of quadrupeds, there are fewer obstructions in the animal machine ; and nature thus finding

plying the heat were attended to ; for death, in most cases, seems to be produced not by the cold, but by the incautious application of heat, which bursts the vessels and destroys the texture of the body. It is well known that if any part of the body be frost-bitten, an incautious application of heat infallibly produces mortification, and destroys the part. There is a remarkable example, in the 28th volume of the Philosophical Transactions, page 265, of a woman almost naked lying buried for six days under the snow, and yet recovering. In this case it is scarcely possible to avoid supposing that the woman must have been in a state of torpor, otherwise she would certainly have endeavoured to find her way home.

Many authentic facts prove the migration of our summer birds ; and that they desert temperate zones at the approach of winter to seek a better climate in lower latitudes. Besides all the tribe of birds of passage feed upon insects, which disappear and become torpid, either in a perfect or embryo state, soon after the autumnal equinox : they are therefore compelled to migrate southward, in search of their natural food.

The winter birds of passage forsake the frosty confines of the arctic circle, to spend the winter in the more temperate parts of Europe : the jacksnipe, redwing, woodcock, and fieldfare are of this tribe. About the end of April they return to the north, to pass the breeding season. It is also well known that swallows winter in different parts of Africa.

more room for the operations of life, is carried on to a greater extent.

All birds in general are less than quadrupeds ; that is, the greatest of one class far surpass the greatest of the other in magnitude. The ostrich, which is the greatest of birds, bears no proportion to the elephant ; and the smallest humming bird, which is the least of the class, is still far more minute than the mouse. In these the extremities of nature are plainly discernible ; and in forming them she appears to have been doubtful in her operations : the ostrich seemingly covered with hair, and incapable of flight, making near approaches to the quadruped class ; while the humming-bird, of the size of an humble bee, and with a fluttering motion, seems nearly allied to the insect.

These extremities of this class are rather objects of human curiosity than utility : it is the middle order of birds which man has taken care to propagate and maintain. Of those which he has taken under his protection, and which administer to his pleasures or necessities, the greatest number seem creatures of his formation. The variety of climate to which he consigns them, the food with which he supplies them, and the purposes for which he employs them, produce amazing varieties both in their colours, shape, magnitude, and the taste of their flesh. Wild birds are, for the most part, of the same magnitude and shape ; they still keep the prints of primæval nature strong upon them, except in a few ; they generally maintain their very colour : but it is otherwise with domestic animals ; they change at the will of man—of the tame pigeon, for instance, it is said they can be bred to a feather.

As we are thus capable of influencing their form and colour, so also is it frequent to see equal instances of our influencing their habits, appetites, and passions. The cock, for instance, is artificially formed into that courage and activity which he is seen to possess : and many birds testify a strong attachment to the hand that feeds them. How far they are capable of instruction, is manifest to those that have the care of hawks. But a still more surprising instance of this was seen some time ago in London : a canary bird was taught to pick up the letters of the alphabet, at the word of command, so as to spell any person's name in company ; and this the little animal did by motions from its master, which were imperceptible to every other spectator

Upon the whole, however, they are inferior to quadrupeds in docility ; and seem more mechanically impelled by all the power of instinct.

CHAP. III.

OF THE DIVISION OF BIRDS.

THOUGH birds are fitted for sporting in the air, yet as they find their food upon the surface of the earth, there seems a variety equal to the different aliments with which it tends to supply them. The flat and burning desert, the rocky cliff, the extensive fen, the stormy ocean, as well as the pleasing landscape, have all their peculiar inhabitants. The most obvious distinction therefore of birds is into those that live by land and those that live by water ; or in other words, into *land birds*, and *water-fowl*.

It is no difficult matter to distinguish land from water-fowl, by the legs and toes. All land-birds have their toes divided, without any membrane or web between them ; and their legs and feet serve them for the purposes of running, grasping, or climbing. On the other hand, water-fowl have their legs and feet formed for the purposes of wading in water, or swimming on its surface. In those that wade, the legs are usually long and naked ; in those that swim, the toes are webbed together, as we see in the feet of a goose, which serve like oars to drive them forward with greater velocity. The formation, therefore, of land and water-fowl is as distinct as their habits, and nature herself seems to offer us this obvious distribution, in methodizing animals of the feathered creation.

However, a distinction so comprehensive goes but a short way in illustrating the different tribes of so numerous a class. The number of birds already known amounts to above eight hundred ;* and every person who turns his mind to these kind of pursuits, is every day adding to the catalogue. It is not enough, therefore, to be able to distinguish a land from a water

* Since Goldsmith's time, nearly three thousand species of birds have been ascertained, and many of the species have several varieties.

fowl ; much more is still required—to be able to distinguish the different kinds of birds from each other ; and even the varieties in the same kind, when they happen to offer. This certainly is a work of great difficulty ; and perhaps the attainment will not repay the labour. The sensible part of mankind will not withdraw all their attention from more important pursuits, to give it entirely up to what promises to repay them only with a very confined species of amusement. In my distribution of birds, therefore, I will follow Linnæus in the first sketch of his system, and then leave him to follow the most natural distinctions. in enumerating the different kinds that admit of a history or require a description.

Linnæus divides all birds into six classes ; namely, into birds of the *rapacious kind*, birds of the *pie kind*, birds of the *poultry kind*, birds of the *sparrow kind*, birds of the *duck kind*, birds of the *crane kind*. The four first comprehend the various kinds of land birds ; the two last, those that belong to the water.

Birds of the *rapacious kind* constitute that class of carnivorous fowl that live by rapine. He distinguishes them by their beak, which is hooked, strong and notched at the point ; by their legs which are short and muscular, and made for the purposes of tearing ; by their toes, which are strong and knobbed ; and their talons, which are sharp and crooked ; by the make of their body which is muscular ; and their flesh, which is impure : nor are they less known by their food, which consists entirely of flesh ; their stomach which is membraneous ; and their manners, which are fierce and cruel.

Birds of the *pie kind* have the bill differing from the former : as in those it resembled a hook, destined for tearing to pieces ; in these it resembles a wedge fitted for the purpose of cleaving. Their legs are formed short and strong for walking ; their body is slender and impure, and their food miscellaneous. They nestle in trees, and the male feeds the female during the time of incubation.

Birds of the *poultry kind* have the bill a little convex, for the purposes of gathering their food. The upper chap hangs over the lower ; their bodies are fat and muscular, and their flesh white and pure. They live upon grain, which is moistened in the crop. They make their nest on the ground without art ; they lay many eggs, and use promiscuous venery.

Birds of the *sparrow kind* comprehend all that beautiful and vocal class that adorn our fields and groves, and gratify every sense in its turn. Their bills may be compared to a forceps that catches hold ; their legs are formed for hopping along ; their bodies are tender ; pure in such as feed upon grain, impure in such as live upon insects. They live chiefly in trees ; their nests are artificially made, and their amours are observed with connubial fidelity.

Birds of the *duck kind* use their bill as a kind of strainer to their food ; it is smooth, covered with a skin, and nervous at the point. Their legs are short, and their feet formed for swimming, the toes being webbed together : their body is fat, inclining to rancidity. They live in waters, and chiefly build nests upon land.

With respect to the order of birds that belong to the waters, those of the *crane kind* have their bill formed for the purposes of searching and examining the bottom of pools ; their legs are long, and formed for wading ; their toes are not webbed ; their thighs are half naked ; their body is slender, and covered with a very thin skin ; their tail is short and their flesh savoury. They live in lakes upon animals, and they chiefly build their nests upon the ground.

Such is the division of Linnæus with respect to this class of animals ; and at first sight it appears natural and comprehensive. But we must not be deceived by appearances ; the student, who should imagine he was making a progress in the history of nature, while he was only thus making arbitrary distributions, would be very much mistaken. Should he come to enter deeper into this naturalist's plan, he would find birds the most unlike in nature thrown together into the same class ; and find animals joined, that entirely differ in climate, in habitudes, in manners, in shape, colouring, and size. In such a distribution, for instance, he would find the humming bird and the raven, the rail and the ostrich, joined in the same family. If, when he asked what sort of a creature was the humming-bird, he were told that it was in the same class with the carrion-crow, would he not think himself imposed upon ? In such a case the only way to form any idea of the animal whose history he is desirous to know, is to see it ; and that curiosity very few have an opportunity of gratifying. The number of birds is so great, that it

might exhaust the patience not only of the writer, but the reader, to examine them all : in the present confined undertaking it would certainly be impossible. I will, therefore, now attach myself to a more natural method ; and still keeping the general division of Linnæus before me, enter into some description of the most noted, or the most worth knowing.

Under one or other class, as I shall treat them, the reader will probably find all the species, and all the varieties that demand his curiosity. When the leader of any tribe is described, and its history known, it will give a very tolerable idea of all the species contained under it. It is true, the reader will not thus have his knowledge ranged under such precise distinctions ; nor can he be able to say with such fluency, that the rail is of the ostrich class ; but what is much more material, he will have a tolerable history of the bird he desires to know, or at least of that which most resembles it in nature.

However, it may be proper to apprise the reader, that he will not here find his curiosity satisfied, as in the former volumes, where we often took Mr Buffon for our guide. Those who have hitherto written the natural history of birds, have in general been contented with telling their names, or describing their toes or their plumage. It must often, therefore, happen, that instead of giving the history of a bird, we must be content to entertain the reader with merely its description. I will, therefore, divide the following history of birds, with Linnæus, into six parts ; in the first of which I will give such as Brisson has ranged among the rapacious birds ; next those of the pie kind ; and thus go on through the succeeding classes, till I finish with those of the duck kind. But before I enter upon a systematic detail, I will beg leave to give the history of three or four birds, that do not well range in any system. These, from their great size, are sufficiently distinguishable from the rest ; and from their incapacity of flying, lead a life a good deal differing from the rest of the feathered creation. The birds I mean are the Ostrich, the Casowary, the Emu, the Dodo, and the Solitaire.

CHAP. IV.

THE OSTRICH.

IN beginning with the feathered tribe, the first animal that offers seems to unite the class of quadrupeds and of birds in itself. While it has the general outline and properties of a bird, yet it retains many of the marks of the quadruped. In appearance the ostrich resembles the camel, and is almost as tall; it is covered with a plumage that resembles hair much more nearly than feathers, and its internal parts bear as near a similitude to those of the quadruped, as of the bird creation. It may be considered, therefore, as an animal made to fill up that chasm in nature which separates one class of beings from another.

The ostrich is the largest of all birds. Travellers affirm, that they are seen as tall as a man on horseback; and even some of those that have been brought into England were above seven feet high. The head and bill somewhat resemble those of a duck; and the neck may be likened to that of a swan, but that it is much longer; the legs and thighs resemble those of a hen; though the whole appearance bears a strong resemblance to that of a camel. But to be more particular: it is usually seven feet high from the top of the head to the ground; but from the back it is only four; so that the head and neck are above three feet long. From the top of the head to the rump, when the neck is stretched out in a right line, it is six feet long, and the tail is about a foot more. One of the wings, without the feathers, is a foot and a half; and being stretched out, with the feathers, is three feet.

The plumage is much alike in all; that is, generally black and white; though some of them are said to be gray. The greatest feathers are at the extremities of the wings and tail, and the largest are generally white. The next row is black and white; and of the small feathers, on the back and belly, some are white and others black. There are no feathers on the sides, nor yet on the thighs, nor under the wings. The lower part of the neck, about half way, is covered with still smaller feathers than those on the belly and back; and those, like the former, also are of different colours.

All these feathers are of the same kind, and peculiar to the os-

trich; for other birds have several sorts, some of which are soft and downy, and others hard and strong. Ostrich feathers are almost all as soft as down, being utterly unfit to serve the animal for flying, and still less adapted to be a proper defence against external injury. The feathers of other birds have the webs broader on one side than the other, but those of the ostrich have their shaft exactly in the middle. The upper part of the head and neck is covered with a very fine, clear, white hair, that shines like the bristles of a hog; and in some places there are small tufts of it, consisting of about twelve hairs, which grow from a single shaft about the thickness of a pin.

At the end of each wing there is a kind of spur, almost like the quill of a porcupine. It is an inch long, being hollow, and of a horny substance. There are two of these on each wing, the largest of which is at the extremity of the bone of the wing, and the other a foot lower. The neck seems to be more slender in proportion to that of other birds, from its not being furnished with feathers. The skin in this part is of a livid flesh-colour, which some improperly would have to be blue. The bill is short and pointed, and two inches and a half at the beginning. The external form of the eye is like that of man, the upper eye-lid being adorned with eye-lashes, which are longer than those on the lid below. The tongue is small, very short, and composed of cartilages, ligaments, and membranes, intermixed with fleshy fibres. In some it is about an inch long, and very thick at the bottom. In others it is but half an inch, being a little forked at the end.

The thighs are very fleshy and large, being covered with a white skin, inclining to redness, and wrinkled in the manner of a net, whose meshes will admit the end of a finger. Some have very small feathers here and there on the thighs; and others again have neither feathers nor wrinkles. What are called the legs of birds, in this are covered before with large scales. The end of the foot is cloven, and has two very large toes, which, like the leg, are covered with scales. These toes are of unequal sizes. The largest, which is on the inside, is seven inches long, including the claw, which is near three-fourths of an inch in length, and almost as broad. The other toe is but four inches long, and is without a claw.

The internal parts of this animal are formed with no less sur-

prising peculiarity. At the top of the breast, under the skin, the fat is two inches thick ; and on the fore part of the belly it is as hard as suet, and about two inches and a half thick in some places. It has two distinct stomachs. The first, which is lowermost, in its natural situation somewhat resembles the crop in other birds ; but it is considerably larger than the other stomach, and is furnished with strong muscular fibres, as well circular as longitudinal. The second stomach, or gizzard, has outwardly the shape of the stomach of a man ; and, upon opening, is always found filled with a variety of discordant substances ; hay, grass, barley, beans, bones, and stones, some of which exceed in size a pullet's egg. The kidneys are eight inches long and two broad, and differ from those of other birds in not being divided into lobes. The heart and lungs are separated by a midriff, as in quadrupeds, and the parts of generation also bear a very strong resemblance and analogy.

Such is the structure of this animal, forming the shade that unites birds and quadrupeds ; and from this structure its habits and manners are entirely peculiar. It is a native only of the torrid regions of Africa, and has long been celebrated by those who have had occasion to mention the animals of that region. Its flesh is proscribed in scripture as unfit to be eaten ; and most of the ancient writers describe it as well known in their times. Like the race of the elephant, it is transmitted down without mixture ; and has never been known to breed out of that country which first produced it. It seems formed to live among the sandy and burning deserts of the torrid zone ; and, as in some measure it owes its birth to their genial influence, so it seldom migrates into tracts more mild or more fertile. As that is the peculiar country of the elephant, the rhinoceros, and camel, so it may readily be supposed capable of affording a retreat to the ostrich. They inhabit, from preference, the most solitary and horrid deserts, where there are few vegetables to clothe the surface of the earth, and where the rain never comes to refresh it. The Arabians assert that the ostrich never drinks ; and the place of its habitation seems to confirm the assertion. In these formidable regions, ostriches are seen in large flocks, which to the distant spectator appear like a regiment of cavalry, and have often alarmed a whole caravan. There is no desert, how barren soever, but what is capable of supplying these animals with pro

vision ; they eat almost every thing ; and these barren tracts are thus doubly grateful, as they afford both food and security. The ostrich is, of all other animals, the most voracious. It will devour leather, glass, hair, iron, stones, or any thing that is given. Nor are its powers of digestion less in such things as are digestible. Those substances which the coats of the stomach cannot soften, pass whole ; so that glass, stones, or iron, are excluded in the form in which they were devoured. All metals, indeed, which are swallowed by any animal, lose a part of their weight, and often the extremities of their figure, from the action of the juices of the stomach upon their surface. A quarter pistole, which was swallowed by a duck, lost seven grains of its weight in the gizzard before it was voided ; and it is probable that a still greater diminution of weight would happen in the stomach of an ostrich. Considered in this light, therefore, this animal may be said to digest iron ; but such substances seldom remain long enough in the stomach of any animal to undergo so tedious a dissolution. However this be, the ostrich swallows almost every thing presented to it. Whether this be from the necessity which smaller birds are under of picking up gravel to keep the coats of their stomach asunder, or whether it be from a want of distinguishing by the taste what substances are fit and what incapable of digestion ; certain it is, that in the ostrich dissected by Ranby there appeared such a quantity of heterogeneous substances, that it was wonderful how any animal could digest such an overcharge of nourishment. Valisnieri also found the first stomach filled with a quantity of incongruous substances ; grass, nuts, cords, stones, glass, brass, copper, iron, tin, lead, and wood ; a piece of stone was found among the rest that weighed more than a pound. He saw one of these animals that was killed by devouring a quantity of quick-lime. It would seem that the ostrich is obliged to fill up the great capacity of its stomach in order to be at ease ; but that nutritious substances not occurring, it pours in whatever offers to supply the void.

In their native deserts, however, it is probable they live chiefly upon vegetables, where they lead an inoffensive and social life ; the male, as Thevenot assures us, assorting with the female with connubial fidelity. They are said to be very much inclined to venery ; and the make of the parts in both sexes seems to confirm the report. It is probable also they copulate, like other

birds, by compression; and they lay very large eggs, some of them being above five inches in diameter, and weighing above fifteen pounds. These eggs have a very hard shell, somewhat resembling those of the crocodile, except that those of the latter are less and rounder.*

The season for laying depends on the climate where the animal is bred. In the northern parts of Africa, this season is about the beginning of July: in the south, it is about the latter end of December. These birds are very prolific, and lay generally from forty to fifty eggs at one clutch. It has been commonly reported that the female deposits them in the sand; and, covering them up, leaves them to be hatched by the heat of the climate, and then permits the young to shift for themselves. Very little of this, however, is true: no bird has a stronger affection for her young than the ostrich, nor none watches her eggs with

* The ostrich is one of the few polygamous birds found in a state of nature; one male being generally seen with two or three, and frequently with five females.

The females which are united to one male deposit all their eggs in the same place, to the number of ten or twelve each: these they hatch altogether; the male also taking his turn of sitting on them. Between sixty and seventy eggs have sometimes been found in one nest. The time of incubation is six weeks. From the want of knowledge that the ostrich is polygamous. Linnaeus has suffered an error respecting this bird to slip into his *Systema Naturæ*, where it is asserted, that one female sometimes lays nearly fifty eggs.

M. Le Vaillant informs us, that he started an ostrich from its nest, in Africa, where he found eleven eggs quite warm, and four others at a short distance. Those in the nest had young ones in them; but his attendants eagerly caught up the detached ones, assuring him that they were perfectly good to eat. They informed him, that near the nest there are always placed a certain number of eggs which the birds do not sit upon, and which are designed for the first nourishment of their future young. "Experience," says M. Le Vaillant, "has convinced me of the truth of this observation; for I never afterwards met with an ostrich's nest, without finding eggs deposited in this manner, at a small distance from it." Some time after this M. Le Vaillant found a female ostrich on a nest containing thirty-two eggs; and twelve eggs were arranged at a little distance, each in a separate cavity formed for it. He remained near the place some time, and saw three other females come and alternately seat themselves on the nest; each sitting for about a quarter of an hour, and then giving place to another, who, while waiting, sat close by the side of her whom she was to succeed.

If the eggs are touched by any person in the absence of the parents, they immediately discover it by the scent, at their return; and not only desist from laying any more in the same place, but trample to pieces with their feet all those that have been left.

greater assiduity. It happens, indeed, in those hot climates, that there is less necessity for the continual incubation of the female ; and she more frequently leaves her eggs, which are in no fear of being chilled by the weather : but though she sometimes forsakes them by day, she always carefully broods over them by night ; and Kolben, who has seen great numbers of them at the Cape of Good Hope, affirms that they sit on their eggs like other birds, and that the male and female take this office by turns, as he had frequent opportunities of observing. Nor is it more true what is said of their forsaking their young after they are excluded the shell. On the contrary, the young ones are not even able to walk for several days after they are hatched. During this time, the old ones are very assiduous in supplying them with grass, and very careful to defend them from danger ; nay, they encounter every danger in their defence. It was a way of taking them among the ancients, to plant a number of sharp stakes round the ostrich's nest in her absence, upon which she pierced herself at her return. The young, when brought forth, are of an ash-colour the first year, and are covered with feathers all over. But in time these feathers drop ; and those parts which are covered assume a different and more becoming plumage.

The beauty of a part of this plumage, particularly the long feathers that compose the wings and tail, is the chief reason that man has been so active in pursuing this harmless bird to its deserts, and hunting it with no small degree of expense and labour. The ancients used those plumes in their helmets ; the ladies of the East make them an ornament in their dress ; and, among us, our undertakers and our fine gentlemen still make use of them to decorate their hearses and their hats. Those feathers which are plucked from the animal while alive, are much more valued than those taken when dead ; the latter being dry, light, and subject to be worm-eaten.

Beside the value of their plumage, some of the savage nations of Africa hunt them also for their flesh, which they consider as a dainty. They sometimes also breed these birds tame, to eat the young ones, of which the female is said to be the greatest delicacy. Some nations have obtained the name of *Struthophagi*, or ostrich-eaters, from their peculiar fondness for this food ; and even the Romans themselves were not averse to it.

Apicius gives a receipt for making sauce for the ostrich ; and Heliogabalus is noted for having dressed the brains of six hundred ostriches in one dish ; for it was his custom never to eat but of one dish in a day, but that was an expensive one. Even among the Europeans now, the eggs of the ostrich are said to be well tasted, and extremely nourishing ; but they are too scarce to be fed upon, although a single egg be a sufficient entertainment for eight men.

As the spoils of the ostrich are thus valuable, it is not to be wondered at that man has become their most assiduous pursuer. For this purpose, the Arabians train up their best and fleetest horses, and hunt the ostrich still in view. Perhaps of all other varieties of the chase, this though the most laborious, is yet the most entertaining. As soon as the hunter comes within sight of his prey, he puts on his horse with a gentle gallop, so as to keep the ostrich still in sight ; yet not so as to terrify him from the plain into the mountains. Of all known animals that make use of their legs in running, the ostrich is by far the swiftest ; upon observing himself therefore pursued at a distance, he begins to run at first but gently ; either insensible of his danger, or sure of escaping. In this situation he somewhat resembles a man at full speed ; his wings, like two arms, keep working with a motion correspondent to that of his legs : and his speed would very soon snatch him from the view of his pursuers ; but, unfortunately for the silly creature, instead of going off in a direct line, he takes his course in circles ; while the hunters still make a small course within, relieve each other, meet him at unexpected turns, and keep him thus still employed, still followed for two or three days together. At last, spent with fatigue and famine, and finding all power of escape impossible, he endeavours to hide himself from those enemies he cannot avoid, and covers his head in the sand, or the first thicket he meets. Sometimes, however, he attempts to face his pursuers ; and though in general the most gentle animal in nature, when driven to desperation, he defends himself with his beak, his wings, and his feet. Such is the force of his motion, that a man would be utterly unable to withstand him in the shock.

The Struthophagi have another method of taking this bird ; they cover themselves with an ostrich's skin, and passing up an arm through the neck, thus counterfeit all the motions of this

animal. By this artifice they approach the ostrich, which becomes an easy prey. He is sometimes also taken by dogs and nets, but the most usual way is that mentioned above.

When the Arabians have thus taken an ostrich, they cut its throat, and making a ligature below the opening, they shake the bird, as one would rince a barrel; then taking off the ligature, there runs out from the wound in the throat a considerable quantity of blood, mixed with the fat of the animal; and this is considered one of their greatest dainties. They next flay the bird; and of the skin, which is strong and thick, sometimes make a kind of vest, which answers the purposes of a cuirass and a buckler.

There are others who, more compassionate or more provident, do not kill their captive, but endeavour to tame it, for the purposes of supplying those feathers which are in so great request. The inhabitants of Dara and Lybia breed up whole flocks of them, and they are tamed with very little trouble. But it is not for their feathers alone that they are prized in this domestic state; they are often ridden upon, and used as horses. Moore assures us, that at Joar he saw a man travelling upon an ostrich; and Adanson asserts, that, at the factory of Podore, he had two ostriches, which were then young, the strongest of which ran swifter than the best English racer, although he carried two negroes on his back. As soon as the animal perceived that it was loaded, it set off running with all its force, and made several circuits round the village; till at length the people were obliged to stop it, by barring up the way. How far this strength and swiftness may be useful to mankind, even in a polished state, is a matter that perhaps deserves inquiry. Posterity may avail themselves of this creature's abilities; and riding upon an ostrich may one day become the favourite, as it most certainly is the swiftest, mode of conveyance.

The parts of this animal are said to be convertible to many salutary purposes in medicine. The fat is said to be emollient and relaxing; that while it relaxes the tendons, it fortifies the nervous system; and being applied to the region of the loins, it abates the pains of the stone in the kidneys. The shell of the egg powdered, and given in proper quantities, is said to be useful in promoting urine, and dissolving the stone in the bladder. The substance of the egg itself is thought to be peculiarly nour-

ishing; however, Galen, in mentioning this, asserts, that the eggs of hens and pheasants are good to be eaten; those of geese and ostriches are the worst of all.

CHAP. V.

THE EMU.

OF this bird, which many call the American Ostrich, but little is certainly known. It is an inhabitant of the New Continent; and the travellers who have mentioned it, seem to have been more solicitous in proving its affinity to the ostrich, than in describing those peculiarities which distinguish it from all others of the feathered creation.

It is chiefly found in Guiana, along the banks of the Oroonoko, in the inland provinces of Brasil and Chili, and the vast forests that border on the mouth of the river Plata. Many other parts of South America were known to have them; but as men multiplied, these large and timorous birds either fell beneath their superior power, or fled from their vicinity.

The Emu, though not so large as the ostrich, is only second to it in magnitude. It is by much the largest bird in the New Continent; and is generally found to be six feet high, measuring from its head to the ground. Its legs are three feet long; and its thigh is near as thick as that of a man. The toes differ from those of the ostrich; as there are three in the American bird, and but two in the former. Its neck is long, its head small, and the bill flatted, like that of the ostrich; but in all other respects it more resembles the Cassowary, a large bird to be described hereafter. The form of the body appears round; the wings are short, and entirely unfitted for flying, and it wants a tail. It is covered from the back and rump with long feathers, which fall backward, and cover the anus; these feathers are gray upon the back, and white on the belly. It goes very swiftly, and seems assisted in its motion by a kind of tubercle behind, like a heel, upon which, on plain ground, it treads very securely; in its course it uses a very odd kind of action, lifting up one wing, which it keeps elevated for a time; till letting it drop, it

lifts up the other. What the bird's intention may be in thus keeping only one wing up, is not easy to discover; whether it makes use of this as a sail to catch the wind, or whether as a rudder to turn its course, in order to avoid the arrows of the Indians, yet remains to be ascertained: however this be, the emu runs with such swiftness, that the fleetest dogs are thrown out in the pursuit. One of them, finding itself surrounded by the hunters, darted among the dogs with such fury, that they made way to avoid its rage; and it escaped, by its amazing velocity, in safety to the mountains.

As this bird is but little known, so travellers have given a loose to their imaginations in describing some of its actions, which they were conscious could not be easily contradicted. This animal, says Nierenberg, is very peculiar in hatching of its young. The male compels twenty or thirty of the females to lay their eggs in one nest; he then, when they have done laying, chases them away, and places himself upon the eggs; however, he takes the singular precaution of laying two of the number aside, which he does not sit upon. When the young ones come forth, these two eggs are addled; which the male having foreseen, breaks one, and then the other, upon which multitudes of flies are found to settle; and these supply the young brood with a sufficiency of provision, till they are able to shift for themselves.

On the other hand, Wafer asserts, that he has seen great quantities of this animal's eggs on the desert shores, north of the river Plata; where they were buried in the sand, in order to be hatched by the heat of the climate. Both this, as well as the preceding account, may be doubted; and it is more probable that it was the crocodile's eggs which Wafer had seen, which are undoubtedly hatched in that manner.

When the young ones are hatched, they are familiar, and follow the first person they meet. I have been followed myself, says Wafer, by many of these young ostriches; which, at first, are extremely harmless and simple; but as they grow older, they become more cunning and distrustful; and run so swift, that a greyhound can scarcely overtake them. Their flesh, in general, is good to be eaten; especially if they be young. It would be no difficult matter to rear up flocks of these animals tame, particularly as they are naturally so familiar: and they might be found to answer domestic purposes, like the hen or the turkey.

Their maintenance could not be expensive, if, as Narborough says, they live entirely upon grass.

CHAP. VI.

THE CASSOWARY.*

THE Cassowary is a bird which was first brought into Europe by the Dutch, from Java, in the East Indies, in which part of the world it is only to be found. Next to the preceding, it is the largest and the heaviest of the feathered species.

The cassowary, though not so large as the former, yet appears more bulky to the eye; its body being nearly equal, and its neck and legs much thicker and stronger in proportion; this conformation gives it an air of strength and force, which the fierceness and singularity of its countenance conspire to render formidable. It is five feet and a half long, from the point of the bill to the extremity of the claws. The legs are two feet and a half high, from the belly to the end of the claws. The head and neck together are a foot and a half; and the largest toe, including the claw, is five inches long. The claw alone of the least toe, is three inches and a half in length. The wing is so small, that it does not appear; it being hid under the feathers of the back. In other birds, a part of the feathers serve for flight, and are different from those that serve for merely covering; but in the cassowary, all the feathers are of the same kind, and outwardly of the same colour. They are generally double; having two long shafts, which grow out of a short one, which is fixed in the skin. Those that are double, are always of an unequal length; for some are fourteen inches long, particularly on the rump; while others are not above three. The beards that adorn the stem or shaft, are, from about half way to the end, very long, and as thick as a horse hair, without being subdivided into fibres. The stem or shaft is flat, shining, black, and knotted below; and from each knot there proceeds a beard: likewise the beards at the end of the large feathers are perfectly black; and towards the root of a gray tawny colour; shorter, more soft, and throwing out fine

* This is also called the Emu.

fibres like down ; so that nothing appears except the ends, which are hard and black ; because the other part, composed of down, is quite covered. There are feathers on the head and neck ; but they are so short and thinly sown, that the bird's skin appears naked, except towards the hinder part of the head, where they are a little longer. The feathers which adorn the rump are extremely thick ; but do not differ, in other respects, from the rest, excepting their being longer. The wings, when they are deprived of their feathers, are but three inches long ; and the feathers are like those on other parts of the body. The ends of the wings are adorned with five prickles, of different lengths and thickness, which bend like a bow ; these are hollow from the roots to the very points, having only that slight substance within, which all quills are known to have. The longest of these prickles is eleven inches ; and it is a quarter of an inch in diameter at the root, being thicker there than towards the extremity ; the point seems broken off.

The part, however, which most distinguishes this animal is the head : this, though small, like that of an ostrich, does not fail to inspire some degree of terror. It is bare of feathers, and is in a manner armed with an helmet of horny substance, that covers it from the root of the bill to near half the head backwards. This helmet is black before and yellow behind. Its substance is very hard, being formed by the elevation of the bone of the skull ; and it consists of several plates, one over another, like the horn of an ox. Some have supposed that this was shed every year with the feathers ; but the most probable opinion is, that it only exfoliates slowly like the beak. To the peculiar oddity of this natural armour may be added the colour of the eye in this animal, which is a bright yellow, and the globe being above an inch and a half in diameter, gives it an air equally fierce and extraordinary. At the bottom of the upper eye-lid, there is a row of small hairs, over which there is another row of black hair, which look pretty much like an eye-brow. The lower eye-lid, which is the largest of the two, is furnished also with plenty of black hair. The hole of the ear is very large and open, being only covered with small black feathers. The sides of the head, about the eye and ear, being destitute of any covering, are blue, except the middle of the lower eye-lid, which is white. The part of the bill which answers to the upper jaw in other animals,

is very hard at the edges above, and the extremity of it like that of a turkey-cock. The end of the lower mandible is slightly notched, and the whole is of a grayish brown, except a green spot on each side. As the beak admits a very wide opening, this contributes not a little to the bird's menacing appearance. The neck is of a violet colour, inclining to that of slate; and it is red behind in several places, but chiefly in the middle. About the middle of the neck before, at the rise of the large feathers, there are two processes formed by the skin, which resemble somewhat the gills of a cock, but that they are blue as well as red. The skin which covers the fore-part of the breast, on which this bird leans and rests, is hard, callous, and without feathers. The thighs and legs are covered with feathers, and are extremely thick, strong, straight, and covered with scales of several shapes; but the legs are thicker a little above the foot than in any other place. The toes are likewise covered with scales, and are but three in number; for that which should be behind is wanting. The claws are of a hard solid substance, black without, and white within.

The internal parts are equally remarkable. The cassowary unites with the double stomach of animals that live upon vegetables, the short intestines of those that live upon flesh. The intestines of the cassowary are thirteen times shorter than those of the ostrich. The heart is very small, being but an inch and a half long, and an inch broad at the base. Upon the whole, it has the head of a warrior, the eye of a lion, the defence of a porcupine, and the swiftness of a courser.

Thus formed for a life of hostility, for terrifying others, and for its own defence, it might be expected that the cassowary was one of the most fierce and terrible animals of the creation. But nothing is so opposite to its natural character, nothing so different from the life it is contented to lead. It never attacks others; and, instead of the bill, when attacked, it rather makes use of its legs, and kicks like a horse, or runs against its pursuer, beats him down, and treads him to the ground.

The manner of going of this animal is not less extraordinary than its appearance. Instead of going directly forward, it seems to kick up behind with one leg, and then making a bound onward with the other, it goes with such prodigious velocity, that the swiftest racer would be left far behind

The same degree of voraciousness which we perceive in the ostrich, obtains as strongly here. The cassowary swallows every thing that comes within the capacity of its gullet. The Dutch assert, that it can devour not only glass, iron, and stones, but even live on burning coals, without testifying the smallest fear, or feeling the least injury. It is said, that the passage of the food through its gullet is performed so speedily, that even the very eggs which it has swallowed whole, pass through it unbroken, in the same form they went down. In fact, the alimentary canal of this animal, as was observed above, is extremely short; and it may happen that many kinds of food are indigestible in its stomach, as wheat or currants are to a man when swallowed whole.

The cassowary's eggs are of a gray ash colour, inclining to green. They are not so large nor so round as those of the ostrich. They are marked with a number of little tubercles of a deep green, and the shell is not very thick. The largest of these is found to be fifteen inches round one way, and about twelve the other.

The southern parts of the most eastern Indies seems to be the natural climate of the cassowary. His domain, if we may so call it, begins where that of the ostrich terminates. The latter has never been found beyond the Ganges; while the cassowary is never seen nearer than the islands of Banda, Sumatra, Java, the Molucca Islands, and the corresponding parts of the continent.* Yet even here this animal seems not to have multiplied in any considerable degree, as we find one of the kings of Java making a present of one of these birds to the captain of a Dutch ship, considering it as a very great rarity. The ostrich, that has kept in the desert and unpeopled regions of Africa, is still numerous, and the unrivalled tenant of its own inhospitable climate. But the cassowary, that is the inhabitant of a more peopled and polished region, is growing scarcer every day. It is thus that in proportion as man multiplies, all the savage and noxious animals

* A species of the Cassowary has been discovered in New Holland: it is seven feet two inches long; the crown of its head flat, which with the neck and body are covered with bristly feathers, varied with brown and grey; its throat is nakedish, and of a bluish lead colour; the feathers of the body are a little incurved at the tip; its wings are hardly visible; its legs are of a brown colour, and its feet with three toes.

fly before him : at his approach they quit their ancient habitations, how adapted soever they may be to their natures, and seek a more peaceable, though barren, retreat ; where they willingly exchange plenty for freedom ; and encounter all the dangers of famine, to avoid the oppressions of an unrelenting destroyer.

CHAP. VII.

THE DODO.

MANKIND have generally made swiftness the attribute of birds ; but the dodo has no title to this distinction. Instead of exciting the idea of swiftness by its appearance, it seems to strike the imagination as a thing the most unwieldy and inactive of all nature. Its body is massive, almost round, and covered with gray feathers ; it is just barely supported upon two short thick legs, like pillars, while its head and neck rise from it in a manner truly grotesque. The neck, thick and palsy, is joined to the head, which consists of two great chaps, that open far behind the eyes, which are large, black, and prominent ; so that the animal, when it gapes, seems to be all mouth. The bill, therefore, is of an extraordinary length, not flat and broad, but thick, and of a bluish white, sharp at the end, and each chap crooked in opposite directions. They resemble two pointed spoons that are laid together by the backs. From all this results a stupid and voracious physiognomy ; which is still more increased by a bordering of feathers round the root of the beak, and which gives the appearance of a hood or cowl, and finishes this picture of stupid deformity. Bulk, which in other animals implies strength, in this only contributes to inactivity. The ostrich, or the cassowary, are no more able to fly than the animal before us ; but then they supply that defect by their speed in running. The dodo seems weighed down by its own heaviness, and has scarcely strength to urge itself forward. It seems among birds what the sloth is among quadrupeds, an unresisting thing, equally incapable of flight or defence. It is furnished with wings, covered with soft ash-coloured feathers, but they are too short to assist it in flying. It is furnished with a tail, with a few small curled feathers ; but this tail is disproportioned and displaced. Its legs are too short for running, and its body too fat to be strong. One

would take it for a tortoise that had supplied itself with the feathers of a bird; and that thus dressed out with the instruments of flight, it was only still the more unwieldy.

This bird is a native of the Isle of France; and the Dutch, who first discovered it there, called it, in their language, the nauseous bird, as well from its disgusting figure as from the bad taste of its flesh. However, succeeding observers contradict the first report, and assert that its flesh is good and wholesome eating. It is a silly simple bird, as may very well be supposed from its figure, and is very easily taken. Three or four dodos are enough to dine a hundred men.

Whether the dodo be the same bird with that which some travellers have described under the bird of Nazareth, yet remains uncertain. The country from whence they both come is the same; their incapacity of flying is the same; the form of the wings and body in both are similar; but the chief difference given is in the colour of the feathers, which in the female of the bird of Nazareth are said to be extremely beautiful; and in the length of their legs, which in the dodo are short; in the other, are described as long. Time and future observation must clear up these doubts; and the testimony of a single witness, who shall have seen both, will throw more light on the subject than the reasonings of a hundred philosophers.*

* The Dodo, described above, has now become extinct, and its former existence has even been called in question by some writers. The following is a statement of all that is known regarding it.

The Hollanders, who, in 1598, fitted out a fleet commanded by Admiral Cornelisz Van Neck, landed at the Isle of France, then generally called Mauritius, and before that known under the name of *Ilha do Cirne*, or *Cisne*, which had been imposed upon it by the Portuguese, and signifying the isle of swans. They there found birds as bulky as a swan, which had on a very thick head a sort of capote of skin, and but three or four black feathers in the place of wings, and four or five small greyish feathers, and frizzled, instead of a tail. These birds were named by the Dutch *Wulvrogels*, which literally signifies *birds of disgust*, on account of the hardness of their flesh, which cooking only seemed to render more coriaceous, except that of the stomach, which was found tolerably good.

A Dutch vessel set out from the Texel at the end of 1618, under the command of Bontekoe, and having landed at the Isle of Bourbon, then called Mascareñas, the crew found there the same kind of birds, which, so far from being able to fly, were so fat that they even walked with difficulty. The Hollanders named them *Dod-aers* or *Dod-aersen*. The relation of Bontekoe, inserted in Hakluyt's *Voyages*, contains a figure of one of them under the first of these names, but without any other details.

BOOK II.

OF RAPACIOUS BIRDS.

CHAP. I.

OF RAPACIOUS BIRDS IN GENERAL.¹

THERE seems to obtain a general resemblance in all the classes of nature. As among quadrupeds, a part were seen to live

1 The animals of this order are all carnivorous : they associate in pairs, build their nests in the most lofty situations, and produce generally four young ones at a brood : and the female is mostly larger than the male. They consist of vultures, eagles, hawks, and owls.

Clusius has described the same bird under the name of *gallus gallinaceus peregrinus*, and of *cygnus cucullatus*, which latter epithet is derived from some fancied resemblance between the membrane covering the bird's head, to the capote, or cowl, of a monk. He describes it as having the bill oblong, thick, and crooked, yellow at the base, bluish in the middle, and black at the extremity. The body, according to his statement, was covered only with some short feathers, and four or five black quills were in the place of wings. The hinder part of the body was very fat ; and instead of tail there were four or five ash-coloured and frizzled feathers. The legs were rather short, and of an equal circumference throughout, covered with scales of a yellowish brown, from the knee to the toes. The same writer adds, that in the stomach of these birds were found stones of different forms and sizes, which, probably, they were in the habit of swallowing, like the granivorous birds to which systematists have associated them.

This description has been copied by Nieremberg ; and Bontius, who has devoted to the dodo the seventeenth chapter of his "Natural and Medical History of the East Indies," adds, that it has large black eyes, mandibles, the aperture of which is very ample, a curved neck, and a body so clumsy and fat, that its walk is very heavy.

The description of Willoughby differs but little from that of Clusius and Bontius ; but he adds, that he himself beheld the spoils of this bird in the museum of Sir John Tradescant.

Herbert, in his travels, tells us, that the dodo weighed at least fifty pounds, and that the stomach was hot enough to digest stones. The weight would appear to be exaggerated, and the pretended faculty of digesting stones is utterly inadmissible.

upon the vegetable productions of the earth, and another part upon the flesh of each other; so among birds, some live upon vegetable food, and others by rapine, destroying all such as want force or swiftness to procure their safety. By thus peopling

The figure of the dodo, found in "Edwards's Gleanings," was copied from a drawing made at the Mauritius from a living individual. This figure has served as a model for all others, and particularly for those given by Dr Latham, by Blumenbach, and by Shaw. The last writer, having remarked some relations between the bill of the dodo and that of the albatross, inquires, whether an inaccurate representation, done by a sailor, might not have given rise to the supposition of a new genus; but when he considers what excessive negligence it would be in any painter to represent a web-footed bird with cleft and separate toes, and to substitute simple winglets for wings of considerable extent, he dismisses this conjecture as of little weight. The same naturalist being determined to continue his researches, in consequence of the assertions of Charleton, who, in his *Onomasticon Zoicon*, affirms that the bill and head of the dodo were then in the Museum of the Royal Society, and of Grew who mentions the leg of one of these birds among the curiosities of the British Museum, found the leg in question at the Museum, and another leg, with the bill and part of the cranium, in the Ashmolean Museum at Oxford, to which all the curious objects in that of Tradescaunt had been transferred. These two pieces came from the individual examined by Willoughby and Ray; and the foot, notwithstanding some injuries of time, seemed to him exactly like the one he had seen in London. Shaw gives the figures of them both, and declares that his doubts concerning the existence of the dodo were completely dispelled.

There are, unfortunately, no other facts than those we have stated which are calculated to throw any light on the existence of the dodo, which has never been seen in Europe since the era above mentioned, when it was said that these birds were found in great numbers in the Isles of France, Bourbon, Rodrigue, and Sechelles. From the notes furnished by M. Morell to the Abbe Rozier, in 1778, and which were inserted in the "*Journal de Physique*," that all those monstrous birds called *Dronte*, or *Dodo*, *Solitary Dodo*, and *Nazarene Dodo*, were perfectly unknown to the oldest inhabitants of these islands, where they had not been seen for more than a century, it is impossible to conceive how birds of such weight, without proper wings, and not web-footed, consequently unable either to swim or fly, could cross the space which separates the islands which they have assigned as their habitation. This reflection, too, invalidates the conjecture of Grant, that the dodo may yet be found on the coasts of some uninhabited islands. The only mode remaining of enabling us to form any positive judgment on the bird in question, would be to examine and compare the earliest relations of the penguins and manchots, and to see what analogies may exist between them and the accounts of the dodo.

Mr John V. Thompson, in a communication to the Magazine of Natural History, on the subject, says, "Having resided some years amongst those islands, inclusive of Madagascar, and being curious to find whether any testimony could be obtained on the spot, as to the existence of the dodo in any of the islands of this or the neighbouring archipelagoes, I may venture to say,

the woods with animals of different dispositions, nature has wisely provided for the multiplication of life ; since, could we suppose that there were as many animals produced as there were vegetables supplied to sustain them, yet there might still be ano-

that no traces of any kind could be found, no more than of the truth of the beautiful tale of *Paul and Virginia*, although a very general belief prevailed as to both the one and the other. I there discovered, however, a copy of the scarce and curious voyage of Leguat, who, and his companions, appear to have been the first residents of Rodrigue ; and, although some allowances appear to be necessary on account of the period in which he wrote, for descriptions and drawings apparently from memory, and a somewhat traveller-like stretch of imagination to enhance the value of his book, yet his evidence must be deemed conclusive, strengthened as it is by the collateral testimony of other voyagers, and by all the facts and statements brought forward by Mr Duncan, in a paper upon this subject, published in the *Zoological Journal* for January, 1828, p. 554, from which it appears, that a *bird* of corresponding size and character did actually exist, of which the only remains are a *bill* and *foot* in the Ashmolean Museum at Oxford, and a *foot* in the British Museum, all of which I had the satisfaction of examining on my return from the Mauritius in 1816.

Mr Duncan, in the paper alluded to, proves that a specimen of this bird existed in Tradescant's museum at Lambeth, where it was seen by Ray and Willoughby. This museum being subsequently removed to Oxford by Dr Ashmole, we find the specimen there in 1700, by the testimony of Hyde, in his *Religionis Veterum Persarum, &c. Hist.*; and in a catalogue of the museum, drawn up since 1755, it is stated that "the Numbers from 5. to 46. (No. 29. being that of the dodo) being decayed, were ordered to be destroyed at a meeting of the visitors, Jan. 8. 1755." It is, therefore, almost certain that the *bill* and *foot* still to be seen in that depository, were those of the above specimen. To verify the painting which is also to be seen in the British Museum, Mr Duncan appears to have taken all the pains possible, and states it to have been drawn from a living bird, sent from the Mauritius to Holland, the Dutch being the first colonists of that island ; to dissipate all doubts as to its accuracy, however, it should be collated with a description taken from the Ashmolean specimen, should such be found to exist.

The island of Rodrigue, or Diego Ruys, although seen by several of the earlier voyagers, after the discovery of the route to India by the Cape, does not appear to have been *visited* anterior to the voyage of Leguat, from its unapproachable appearance, and the apparent continuity of the extensive madreporitic reef which every where surrounds it, and upon which the sea continually breaks, at a very considerable distance from the shore ; the same causes still operate in repelling the tide of colonisation, as, at the time of our late conquest of the group to which it belongs, a single French family constituted the whole of its population. Leguat and his companions, then, may be presumed to have seen it in its virgin state ; a circumstance which makes his narration doubly interesting, and shows not only the abundance of its animal productions, but the paradisiacal peace and amity which appeared to reign amongst them, and the little dread they seemed to possess at the presence of their destined destroyer. Of the dodo, he says.—

"Of all the birds which inhabit this island, the most remarkable is that

ther class of animals formed, which could find a sufficient sustenance by feeding upon such of the vegetable feeders as happened to fall by the course of nature. By this contrivance, a greater number will be sustained upon the whole ; for the num-

which has been called Solitaire (the solitary,) because they are rarely seen in flocks, although there is abundance of them. The *males* have generally a greyish or brown plumage, the feet of the turkey-cock, as also the beak, but a little more hooked. They have hardly any tail, and their posterior, covered with feathers, is rounded like the croup of a horse. They stand higher than the turkey-cock, and have a straight neck, a little longer in proportion than it is in that bird when it raises its head. The eye is black and lively, and the head without any crest or tuft. They do not fly, their wings being too short to support the weight of their bodies ; they only use them in beating their sides, and in whirling round ; when they wish to call one another, they make, with rapidity, twenty or thirty rounds in the same direction, during the space of four or five minutes ; the movement of their wings then makes a noise which approaches exceedingly that of a kestrel (Creccerelle,) and which is heard at more than 200 paces distant. The bone of the false pinion is enlarged at its extremity, and forms, under the feathers, a little round mass like a musket-bullet : this and their beak form the principal defence of this bird. It is extremely difficult to catch them in the woods ; but as a man runs swifter than they, in the more open spots it is not very difficult to take them ; sometimes they may even be approached very easily. From the month of March until September, they are extremely fat, and of most excellent flavour, especially when young. The males may be found up to the weight of 45 lb. ; Herbert even says 50 lb. The *female* is of admirable beauty. Some are of a blond, others of a brown, colour ; I mean by blond the colour of flaxen hair. They have a kind of band, like the bandeau of widows, above the beak, which is of a tan colour. One feather does not pass another over all their body, because they take great care to adjust and polish them with their beak. The feathers which accompany the thighs are rounded into a shell-like form, and, as they are very dense at this place, produce a very agreeable effect. They have two elevations over the crop, of a somewhat whiter plumage than the rest, and which resemble wonderfully the fine breast of a woman. They walk with so much stateliness and grace combined, that it is impossible not to admire and love them ; so much so, that their appearance has often saved their life. Although these birds approach, at times, very familiarly when they are not chased, they are incapable of being tamed ; as soon as caught, they drop tears, without crying, and refuse obstinately all kind of nourishment, until at last they die. There is always found in their gizzard (as well as in that of the males) a brown stone, the size of a hen's egg ; it is slightly tuberculated (rabotuse,) flat on one side, and rounded on the other, very heavy and very hard. We imagined that this stone was born with them, because, however young they might be, they always had it, and never more than one ; and besides this circumstance, the canal which passes from the crop to the gizzard, is by one half too small to give passage to such a mass. We used them, in preference to any other stone, to sharpen our knives. When these birds set about building their nests, they choose a clear spot, and raise it a foot and a half off the ground, upon a heap of leaves of the palm tree, which they col-

bers would be but very thin were every creature a candidate for the same food. Thus, by supplying a variety of appetites, nature has also multiplied life in her productions.

In thus varying their appetites, nature has also varied the form of the animal; and while she has given some an instinctive passion for animal food, she has also furnished them with powers to obtain it. All land birds of the rapacious kinds are furnished with a large head, and a strong crooked beak, notched at the end, for the purpose of tearing their prey. They have strong short legs, and sharp crooked talons, for the purpose of seizing it. Their bodies are formed for

fect together for the purpose. They only lay one egg, which is very much larger than that of a goose. The male and female sit by turns, and it does not hatch until after a period of seven weeks. During the whole period of incubation, or that they are rearing their young one, which is not capable of providing for itself until after several months, they will not suffer any bird of their own kind to approach within 200 paces of their nest; and what is very singular is, that the male never chases away the females; only, when he perceives one, he makes, in whirling, his ordinary noise, to call his companion, which immediately comes and gives chase to the stranger, and which she does not quit until driven without their limits. The female does the same, and allows the males to be driven off by her mate. This is a circumstance that we have so often witnessed, that I speak of it with certainty. These combats last sometimes for a long time, because the stranger only turns off, without going in a straight line from the nest; nevertheless, the others never quit until they have chased them away."*

We have, in this last relation of Leguat, who resided in the midst of them for a considerable period, a detailed, although rude, description, and a natural history of the dodo, probably the only one that was ever penned under such favourable circumstances. No doubt this first colony, in so small an island, considerably reduced the number of the dodo: but when they finally disappeared does not appear to have been any where recorded. From the nature and habits of the bird, it is clear that the duration of the species was wholly incompatible with the dominion of man: had it been capable of domestication, or had it possessed the swiftness of foot of the ostrich, or the aquatic habits of the penguin, to compensate its want of the power of flying, they might still have shared some of the possessions originally assigned to the race; or even like the turkey-cock and goose, have administered to the wants of mankind, in every temperate region of the globe; under existing circumstances, however, they appear to have been what may be truly termed a paradisiacal bird, and predestined to disappear at their proper time. As they are the only vertebrated animals which we can make certain of having lost since the last creation, they furnish an interesting subject of meditation to the philosophic naturalist.

* Voyage de Francois Leguat, Gentilhomme, Bressan, 1708.

war, being fibrous and muscular ; and their wings for swiftness of flight, being well feathered and expansive. The sight of such as prey by day is astonishingly quick ; and such as ravage by night, have their sight so fitted as to see objects in darkness with extreme precision.

Their internal parts are equally formed for the food they seek for. Their stomach is simple and membranous, and wrapt in fat to increase the powers of digestion ; and their intestines are short and glandular. As their food is succulent and juicy, they want no length of intestinal tube to form it into a proper nourishment. Their food is flesh ; which does not require a slow digestion to be converted into a similitude of substance to their own.

Thus formed for war, they lead a life of solitude and rapacity. They inhabit by choice the most lonely places, and the most desert mountains. They make their nests in the cliffs of rocks, and on the highest and most inaccessible trees of the forest. Whenever they appear in the cultivated plain or the warbling grove, it is only for the purposes of depredation ; and are gloomy intruders on the general joy of the landscape. They spread terror wherever they approach : all that variety of music which but a moment before enlivened the grove, at their appearing is instantly at an end : every order of lesser birds seek for safety, either by concealment or flight ; and some are even driven to take protection with man, to avoid their less merciful pursuers.

It would indeed be fatal to all the smaller race of birds, if, as they are weaker than all, they were also pursued by all ; but it is contrived wisely for their safety, that every order of carnivorous birds seek only for such as are of the size most approaching their own. The eagle flies at the bustard or the pheasant ; the sparrow-hawk pursues the thrush and linnet. Nature has provided that each species should make war only on such as are furnished with adequate means of escape. The smallest birds avoid their pursuers by the extreme agility, rather than the swiftness of their flight ; for every order would soon be at an end, if the eagle, to its own swiftness of wing, added the versatility of the sparrow.

Another circumstance which tends to render the tyranny of these animals more supportable, is, that they are less fruitul

than other birds ; breeding but few at a time. Those of the larger kind seldom produce above four eggs, often but two ; those of the smaller kinds, never above six or seven. The pigeon, it is true, which is their prey, never breeds above two at a time ; but then she breeds every month in the year. The carnivorous kinds only breed annually, and, of consequence, their fecundity is small in comparison.

As they are fierce by nature, and are difficult to be tamed, so this fierceness extends even to their young, which they force from the nest sooner than birds of the gentler kind. Other birds seldom forsake their young till able, completely, to provide for themselves : the rapacious kinds expel them from the nest at a time when they still should protect and support them. This severity to their young proceeds from the necessity of providing for themselves. All animals that, by the conformation of their stomach and intestines, are obliged to live upon flesh, and support themselves by prey, though they may be mild when young, soon become fierce and mischievous, by the very habit of using those arms with which they are supplied by nature. As it is only by the destruction of other animals that they can subsist, they become more furious every day ; and even the parental feelings are overpowered in their general habits of cruelty. If the power of obtaining a supply be difficult, the old ones soon drive their brood from the nest to shift for themselves, and often destroy them in a fit of fury caused by hunger.

Another effect of this natural and acquired severity is, that almost all birds of prey are unsociable. It has long been observed by Aristotle, that all birds with crooked beaks and talons are solitary : like quadrupeds of the cat kind, they lead a lonely wandering life, and are united only in pairs, by that instinct which overpowers their rapacious habits of enmity with all other animals. As the male and female are often necessary to each other in their pursuits, so they sometimes live together ; but except at certain seasons, they most usually prowl alone ; and, like robbers, enjoy in solitude the fruits of their plunder.

All birds of prey are remarkable for one singularity, for which it is not easy to account. All the males of these birds are about a third less, and weaker than the females, contrary to what obtains among quadrupeds, among which the males are always the largest and the boldest : from thence the male is

called by falconers a *tarcel*; that is, a tierce or third less than the other. The reason of this difference cannot proceed from the necessity of a larger body in the female for the purpose of breeding, and that her volume is thus increased by the quantity of her eggs; for in other birds, that breed much faster, and that lay in much greater proportion, such as the hen, the duck, or the pheasant, the male is by much the largest of the two.

Whatever be the cause, certain it is, that the females, as Willoughby expresses it, are of greater size, more beautiful and lovely for shape and colours, stronger, more fierce and generous, than the males; whether it may be that it is necessary for the female to be thus superior, as it is incumbent upon her to provide, not only for herself, but her young ones also.

These birds like quadrupeds of the carnivorous kind, are all lean and meagre. Their flesh is stringy and ill-tasted, soon corrupting, and tinctured with the flavour of that animal food upon which they subsist. Nevertheless, Belonius asserts, that many people admire the flesh of the vulture and falcon, and dress them for eating, when they meet with any accident that unfits them for the chase. He asserts, that the osprey, a species of the eagle, when young, is excellent food; but he contents himself with advising us to breed these birds up for our pleasure rather in the field, than for the table.

Of land birds of a rapacious nature, there are five kinds. The eagle kind, the hawk kind, the vulture kind, the horned and the screech owl kind. The distinctive marks of this class are taken from their claws and beak: their toes are separated: their legs are feathered to the heel: their toes are four in number; three before, one behind: their beak is short, thick, and crooked.

The eagle kind is distinguished from the rest by his beak, which is straight till towards the end, when it begins to hook downwards.

The vulture kind is distinguished by the head and neck; which are without feathers.

The hawk kind by the beak; being hooked from the very root.

The horned owl by the feathers at the base of the bill stand-

ing forwards ; and by some feathers on the head that stand out, resembling horns.

The screech-owl by the feathers at the base of the bill standing forward, and being without horns. A description of one in each kind, will serve for all the rest.

CHAP. II.

THE EAGLE AND ITS AFFINITIES.

THE Golden Eagle is the largest and the noblest of all those birds that have received the name of eagle. It weighs above twelve pounds. Its length is three feet ; the extent of its wings, seven feet four inches ; the bill is three inches long, and of a deep blue colour ; and the eye of a hazel colour. The sight and sense of smelling, are very acute. The head and neck are clothed with narrow sharp-pointed feathers, and of a deep brown colour, bordered with tawny ; but those on the crown of the head, in very old birds, turn grey. The whole body, above as well as beneath, is of a dark brown ; and the feathers of the back are finely clouded with a deeper shade of the same. The wings, when clothed, reach to the end of the tail. The quill-feathers are of a chocolate colour, the shafts white. The tail is of a deep brown, irregularly barred and blotched with an obscure ash-colour, and usually white at the roots of the feathers. The legs are yellow, short, and very strong, being three inches in circumference, and feathered to the very feet. The toes are covered with large scales, and armed with the most formidable claws, the middle of which are two inches long.

In the rear of this terrible bird follow the *ring-tailed eagle*, the *common eagle*, the *bald eagle*, the *white eagle*, the *kough-footed eagle*, the *erne*, the *black eagle*, the *osprey*, the *sea eagle*, and the *crowned eagle*. These, and others that might be added, form different shades in this fierce family ; but have all the same rapacity, the same general form, the same habits, and the same manner of bringing up their young.

In general, these birds are found in mountainous and ill-

peopled countries, and breed among the loftiest cliffs. They choose those places which are remotest from man, upon whose possessions they but seldom make their depredations, being contented rather to follow the wild game in the forest, than to risk their safety, to satisfy their hunger.

This fierce animal may be considered among birds, as the lion among quadrupeds; and in many respects they have a strong similitude to each other. They are both possessed of force, and an empire over their fellows of the forest. Equally magnanimous, they disdain smaller plunder; and only pursue animal worthy the conquest. It is not till after having been long provoked, by the cries of the rook or the magpie, that this generous bird thinks fit to punish them with death: the eagle also disdains to share the plunder of another bird; and will take up with no other prey but that which he has acquired by his own pursuits. How hungry soever he may be, he never stoops to carrion; and when satiated, he never returns to the same carcase, but leaves it for other animals, more rapacious and less delicate than he. Solitary, like the lion, he keeps the desert to himself alone; it is as extraordinary to see two pair of eagles in the same mountain, as two lions in the same forest. They keep separate, to find a more ample supply; and consider the quantity of their game as the best proof of their dominion. Nor does the similitude of these animals stop here: they have both sparkling eyes, and nearly of the same colour; their claws are of the same form, their breath equally strong, and their cry equally loud and terrifying. Bred both for war, they are enemies of all society: alike fierce, proud, and incapable of being easily tamed. It requires great patience and much art to tame an eagle; and even though taken young, and brought under by long assiduity, yet still it is a dangerous domestic, and often turns its force against its master.

When brought into the field for the purposes of fowling, the falconer is never sure of its attachment: that innate pride, and love of liberty, still prompt it to regain its native solitudes; and the moment the falconer sees it, when let loose, first stoop towards the ground, and then rise perpendicularly into the clouds, he gives up all his former labour for lost; quite sure of never beholding his late prisoner more. Sometimes, however, they are brought to have an attachment for their feeder; they are then highly serviceable, and liberally provide for his pleasures

and support. When the falconer lets them go from his hand, they play about and hover round him till their game presents, which they see at an immense distance, and pursue with certain destruction.

Of all animals the eagle flies highest; and from thence the ancients have given him the epithet of *the bird of heaven*. Of all others also, he has the quickest eye; but his sense of smelling is far inferior to that of the vulture. He never pursues, therefore, but in sight; and when he has seized his prey, he stoops from his height, as if to examine its weight, always laying it on the ground before he carries it off. As his wing is very powerful, yet, as he has but little suppleness in the joints of the leg, he finds it difficult to rise when down; however, if not instantly pursued, he finds no difficulty in carrying off geese and cranes. He also carries away hares, lambs, and kids; and often destroys fawns and calves, to drink their blood, and carries a part of their flesh to his retreat. Infants themselves, when left unattended, have been destroyed by these rapacious creatures; which probably gave rise to the fable of Ganymede's being snatched up by an eagle to heaven.

An instance is recorded in Scotland of two children being carried off by eagles; but fortunately they received no hurt by the way; and, the eagles being pursued, the children were restored unhurt out of the nests to the affrighted parents.*

The eagle is thus at all times a formidable neighbour; but peculiarly when bringing up its young. It is then that the female, as well as the male, exert all their force and industry to supply their young. Smith, in his history of Kerry, relates, that a poor man in that country got a comfortable subsistence for his family, during a summer of famine, out of an eagle's nest, by robbing the eaglets of food, which was plentifully supplied by the old ones. He protracted their assiduity beyond the usual time, by clipping their wings, and retarding the flight of the young; and very probably also, as I have known myself, by so tying them as to increase their cries, which is always found to increase the parent's despatch to procure them provision. It was lucky, however, that the old eagles did not surprise the country-man as

* Ray relates, that in one of the Orkneys, a child of a year old was seized by an eagle, and carried about four miles to its nest. The mother pursued it, found her child in the nest, and took it away unhurt.

he was thus employed, as their resentment might have been dangerous.

It happened some time ago, in the same country, that a peasant resolved to rob the nest of an eagle, that had built in a small island in the beautiful lake of Killarney. He accordingly stripped, and swam in upon the island while the old ones were away; and, robbing the nest of its young, he was preparing to swim back, with the eaglets tied in a string; but while he was yet up to his chin in the water, the old eagles returned, and, missing their young, quickly fell upon the plunderer, and, in spite of all his resistance, despatched him with their beaks and talons.*

In order to extirpate these pernicious birds, there is a law in the Orkney Islands, which entitles any person that kills an eagle to a hen out of every house in the parish in which the plunderer is killed.

The nest of the eagle is usually built in the most inaccessible cliff of the rock, and often shielded from the weather by some jutting crag that hangs over it. Sometimes, however, it is wholly exposed to the winds, as well sideways as above; for the nest is flat, though built with great labour. It is said that the same nest serves the eagle during life; and indeed the pains bestowed in forming it seems to argue as much. One of these was found in the Peak of Derbyshire; which Willoughby thus describes. "It was made of great sticks, resting one end on the edge of a rock, the other on two birch trees. Upon these was a layer of rushes, and over them a layer of heath, and upon the heath rushes again: upon which lay one young one, and an addle egg; and by them a lamb, a hare, and three heath-poults. The nest was

* A gentleman who lived in the south of Scotland, had, not many years ago, a tame eagle, which the keeper one day injudiciously thought proper, for some petty fault, to lash with a horse-whip. About a week afterwards, the man chanced to stoop within reach of his chain, when the enraged animal recollecting the late insult, flew in his face with so much fury and violence, that he was terribly wounded, but was luckily driven so far back by the blow as to be out of all further danger. The screams of the eagle alarmed the family, who found the man lying at some distance in a very bloody condition, equally stunned with the fright and fall. The animal was still pacing and screaming in a manner not less formidable than majestic. It was even dreaded whether, in so violent a rage, he might not break loose; which, indeed, fortunately perhaps for them, he did, just as they withdrew, and thus escaped for ever.

about two yards square, and had no hollow in it. The young eagle was of the shape of a goshawk, of almost the weight of a goose, rough footed, or feathered down to the foot, having a white ring about the tail." Such is the place where the female eagle deposits her eggs; which seldom exceed two at a time in the largest species, and not above three in the smallest. It is said that she hatches them for thirty days: but frequently, even of this small number of eggs, a part it is addled; and it is extremely rare to find three eaglets in the same nest. It is asserted, that as soon as the young ones are somewhat grown, the mother kills the most feeble or the most voracious. If this happens, it must proceed only from the necessities of the parent, who is incapable of providing for their support; and is content to sacrifice a part to the welfare of all.

The plumage of the eaglets is not so strongly marked as when they come to be adult. They are at first white; then inclining to yellow; and at last of a light brown. Age, hunger, long captivity, and diseases, make them whiter. It is said they live above a hundred years; and that they at last die, not of old age, but from the beaks turning inward upon the under mandible, and thus preventing their taking any food. They are equally remarkable, says, Mr Pennant, for their longevity, and for their power of sustaining a long abstinence from food. One of this species, which has now been nine years in the possession of Mr Owen Holland, of Conway, lived thirty-two years with the gentleman who made him a present of it; but what its age was when the latter received it from Ireland is unknown. The same bird also furnishes a proof of the truth of the other remark; having once, through the neglect of servants, endured hunger for twenty one days, without any sustenance whatever.

Those eagles which are kept tame, are fed with every kind of flesh, whether fresh or corrupting; and when there is a deficiency of that, bread, or other provision, will suffice. It is very dangerous approaching them if not quite tame; and they sometimes send forth a loud piercing lamentable cry, which renders them still more formidable. The eagle drinks but seldom; and perhaps, when at liberty, not at all, as the blood of its prey serves to quench its thirst. The eagle's excrements are always soft and moist, and tinged with that whitish substance which, as was said before, mixes in birds with the urine.

Such are the general characteristics and habitudes of the eagle ; however, in some these habitudes differ, as the sea eagle and the osprey live chiefly upon fish, and consequently build their nests on the shore, and by the sides of rivers on the ground among reeds ; and often lay three or four eggs, rather less than those of a hen, of a white elliptical form. They catch their prey, which is chiefly fish, by darting down upon them from above. The Italians compare the violent descent of these birds on their prey to the fall of lead into water ; and call them *aquila pionbina*, or the leaden eagle.

Nor is the bald eagle, which is an inhabitant of North Carolina, less remarkable for habits peculiar to itself. These birds breed in that country all the year round. When the eaglets are just covered with down, and a sort of white woolly feathers, the female eagle lays again. These eggs are left to be hatched by the warmth of the young ones that continue in the nest ; so that the flight of one brood makes room for the next that are but just hatched. These birds fly very heavily ; so that they cannot overtake their prey, like others of the same denomination. To remedy this, they often attend a sort of fishing-hawk, which they pursue, and strip the plunderer of its prey. This is the more remarkable, as this hawk flies swifter than they. These eagles also generally attend upon fowlers in the winter ; and when any birds are wounded, they are sure to be seized by the eagle, though they may fly from the fowler. This bird will often also steal young pigs, and carry them alive to the nest, which is composed of twigs, sticks, and rubbish ; it is large enough to fill the body of a cart ; and is commonly full of bones half eaten, and putrid flesh, the stench of which is intolerable.

The distinctive marks of each species are as follow :

The *golden eagle* : of a tawny iron colour ; the head and neck of a reddish iron ; the tail feathers of a dirty white, marked with cross bands of tawny iron ; the legs covered with tawny iron feathers.

The *common eagle* : of a brown colour ; the head and upper part of the neck inclining to red ; the tail feathers white, blackening at the ends ; the outer ones, on each side, of an ash colour ; the legs covered with feathers of a reddish brown.*

* The *Common Eagle*, is found all over Europe and North America. It fre-

The *bald eagle* : brown ; the head, neck, and tail feathers, white ; the feathers of the upper part of the leg brown.

The *white eagle* : the whole white.

The *rough-footed eagle* : of a dirty brown ; spotted under the wings, and on the legs, with white ; the feathers of the tail white at the beginning and the point ; the leg-feathers dirty brown, spotted with white.

The *white-tailed eagle* : dirty brown ; head white ; the stems of the feathers black ; the rump inclining to black : the tail feathers, the first half black, the end half white ; legs naked.

The *erne* : a dirty iron colour above, an iron mixed with black below ; the head and neck ash, mixed with chestnut ; the points of the wings blackish ; the tail feathers white ; the legs naked.

The *black eagle* : blackish ; the head and upper neck mixed with red ; the tail feathers, the first half white, speckled with black ; the other half blackish ; the leg feathers dirty white.

The *sea eagle* : inclining to white, mixed with iron brown ; belly white with iron coloured spots ; the covert feathers of the tail whitish ; the tail feathers black at the extremity ; the upper part of the leg feathers of an iron brown.

quents chiefly in the high mountains of France, Switzerland, Germany, Poland, and Scotland, and descends into the plains in winter. It has been seen in Barbary, and it would appear that it also exists in Arabia and Persia. It has been found in Louisiana, the Floridas, Carolina, and at Hudson's Bay. During summer, it never quits the mountains, but when it descends in winter the forests become its asylum during the rigour of that season. The flight of this eagle is so high, that it is often completely lost sight of. From this great distance, however, its cry is still audible, and then resembles the barking of a small dog. This eagle builds, on the most rugged rocks, a flat nest about five feet square where it rears the young, whose operations it also directs during their adolescence. Its eggs are of a brown red, with blackish stripes. It is particularly fond of hares, which form its principal food. It also preys on various birds, and even on lambs. The male eagle never hunts alone, except when the female cannot quit the eggs or young. At other seasons they always hunt together ; and some mountaineers pretend that one beats the bushes, while the other remains in some elevated place to stop the prey on its passage. According to Marco Polo, the eagle is employed in Tartary to hunt hares, and even wolves and foxes, but this probably applies to the great eagle : the common eagle was of no use in falconry. Spallanzani has observed, in relation to this bird, that when it swallows pieces of meat, two streams of fluid spring from the apertures of its nostrils, run down the upper part of the beak, and uniting at its point, enter it and mix with the food.

The *osprey* : brown above, white below, the back of the head white, the outward tail feathers, on the inner side, streaked with white ; legs naked. *

The *jean le blanc* : above, brownish grey : below, white, spot

* The *Osprey*, or *Ossifrage*, is so named, because fragments of bones of considerable magnitude have been found in its stomach. It is found in the different countries of Europe and North America. Though it appears generally to prefer cold and even frozen regions, such as Russia, Siberia, and Kamtschatka, Poiret has seen it in Barbary. From its usual habitat on the sea-shore, on the banks of great rivers and lakes over which it is continually hovering, it has received the denomination of the great sea-eagle. Fish is the principal article of its subsistence, which it seizes by darting on it when it is on a level with the water, and sometimes even by plunging after it. It also preys on sea-birds, young seals, hares and even lambs. It hunts and fishes both by night and day, having the double advantage of seeing better in daylight than the nocturnal birds, and by night than the diurnal. The morning and evening, however, are the principal times which it devotes to this exercise. Its flight is neither as elevated nor as rapid as that of the great eagle, and not being so long-sighted, it does not pursue its prey so far.

The osprey builds its nest in the rocks which border the sea-coast, or in very lofty oaks. It lays two round and very heavy eggs of a dirty white. It nurses its young with the greatest affection ; but as one of the eggs is often unfruitful, the species, though considerably extended, is not very numerous any where.

The pygargus, which is now ascertained to be of the same species as the osprey, though formerly separated, is found in the northern parts of both continents. Pallas beheld a prodigious quantity of them in the mountains of the Volga. This bird frequents the sea-coasts and lives on fish, young seals, ducks, &c., and the carcasses of animals cast on shore by the waves. To make itself master of the diving birds, it perches on the point of the rocks, and judging from the agitation of the water of the place where the bird will re-appear, it seizes it at the very instant of its rising to the surface. When it has possessed itself of a prey too heavy to be raised out of the water, it drags it to the shore, flying backwards ; but when its talons have entered the body of some large seal, and it cannot disengage them, it is drawn into the water by the animal, and is heard to utter the most piercing cries. Aristotle says, that this bird also preys on fawns, deer, and roebucks. It has been observed that the pygargi which frequent inhabited places, hunt only for some hours in the middle of the day, and rest in the morning, evening, and night. This bird builds its nest in rocks, and composes it of small branches arranged in a circular form : the interior is furnished with weeds, grass, moss, and feathers. Buffon informs us, after Willoughby, that this nest is also found on large trees, whose foliage constitutes its only shelter above. The female lays two whitish eggs of the form and size of goose eggs. Incubation takes place in April, and frequently but one young one is hatched. These birds feed their young by throwing pieces of flesh into the nest, which the latter quit as soon as they are able to fly, and accompany the parents to the chase.

ted with tawny brown; the tail feathers, on the outside and at the extremity, brown; on the inside, white, streaked with brown; legs naked.

The *eagle of Brasil*: blackish brown; ash colour, mixed in the wings; tail feathers white; legs naked.

The *Oroonoko eagle*: with a topping; above, blackish brown; below, white, spotted with black; upper neck yellow; tail feathers brown, with white circles; leg feathers white, spotted with black.

The *crowned African eagle*: with a topping; the tail of an ash colour, streaked on the upper side with black.

The *eagle of Pondicherry*: chestnut colour: the six outward tail feathers black one half.*

* To these may be added, a species of sea eagle, which M. Audubon has called the *Bird of Washington*, as being the noblest of the genus known to naturalists. The flight of this bird is very different from that of the white-headed eagle, encircling more diameter than the latter; whilst sailing, keeping nearer to the land and the surface of the water; and when about to dive for fish, falling in a circuitous spiral manner, as if with an intention of checking all retreating movement which its prey might attempt, and only when within a few yards darting upon it. The fish-hawk often does the same. When rising with a fish they fly to a considerable distance, forming, in their line of course and that of the water a very acute angle, something not exceeding thirty degrees, when several hundred yards distant from the spot emerged from.

The male bird weighs about $14\frac{1}{2}$ lbs. avoirdupois, measures 3 ft. 7 in. in length, and 10 ft. 2 in. in extent. The upper mandible $3\frac{2}{3}$ in., dark bluish black.

The *Martial eagle*, sometimes called the *griffard*, is a large species discovered in Africa by Le Vaillant. It inhabits the country of the great Namaquois, between the twenty-eighth degree of south latitude and the tropic, and probably exists in the other parts of Africa. When perched, it emits sharp and piercing cries, mixed with hoarse and lugubrious tones, which are heard at a great distance. It flies, with the legs pendant, and, like the common eagle, rises so high that it is lost sight of, though its cry is still audible. Highly courageous, it never suffers any great bird of rapine to approach within its domain. It hunts gazelles and hares.

The griffards, like the other eagles, are usually observed in couples, but during the hatching time the male alone provides for the subsistence of the family. The nest is formed between precipitous rocks, or on the summits of lofty trees. Its basis is constituted like that of the other eagles' nests, but it is covered with a large quantity of small wood, moss, and roots, which give it a thickness of about two feet. This bed is again covered with small bits of dry wood, on which the female lays two eggs almost round, entirely white, and more than three inches in diameter.

The *Balbuzzard* is pretty generally spread through France, Germany, and most of the countries of Europe from north to south. It is also found

CHAP. III.

THE CONDOR OF AMERICA.

WE might now come to speak of the vulture kind, as they hold the next rank to the eagle ; but we are interrupted in our

in Barbary, Egypt, Louisiana, and even in the island of Pins in the South Sea. The balbuzzards of the reeds in Carolina and Cayenne, appear to be only varieties of the same species, which equally inhabits Pennsylvania, and is sometimes called *piravera*. The places which the balbuzzard prefers to frequent, are not the shores of the sea, but low lands bordering on ponds and rivers, from which habit it might be termed the fresh-water eagle. Perched on a lofty tree, or hovering at a considerable elevation in the air, it watches the fish from afar, descends upon it with the rapidity of lightning, seizes it at the moment it appears on the surface of the water, or even plunges in completely after it, and carries it off in its talons. But this prey, the weight of which renders the flight of the bird slow and laborious, does not always remain the portion of the balbuzzard. On the banks of the Ohio, where it goes to fish, when the *perca ocellata* quits the ocean to enter the river, dwells also the formidable pygargus. When he sees the balbuzzard arrived to the height of his eyrie, he quits his own, pursues him closely, until the fisher, convinced of his inferiority, abandons the prey ; then this fierce antagonist with folded wings shoots down like an arrow, and with the most inconceivable address, seizes the fish again before it reaches the river. The right of the strongest is the sovereign arbiter of small and great events, and governs throughout the universe with resistless sway, in the air, on the earth, and under the waters.

But as a corsair, whose booty has been taken by an enemy in sight of port, undertakes a new expedition in the hope of being more fortunate, so the balbuzzard recommences his operations, and possessed of a fresh prey, he usually succeeds, if it be not too heavy, in escaping with it from his redoubtable foe. These scenes continually occur as long as the fish above-mentioned remains in the river. When it returns to the ocean, the pygargus retires to his mountains, to pursue game, and the balbuzzard betakes himself to the sea-shore, where he is no longer obliged to pay tribute for his plunder.

The balbuzzard builds its nest on the lofty trees of thick forests, or in the crevices of rocks. According to Lewin, it is also constructed on the ground in the midst of reeds. Two or three white eggs are generally laid, sometimes four, and spotted with red.

These birds are almost always in pairs ; but when the waters are frozen, they separate in search of milder climates and a more facile subsistence ; they are usually very fat, and the flesh savours strongly of fish. It is said, that they might easily be trained for fishing as other birds are for hunting, and it appears not improbable. In Siberia, where they are very common, an opinion prevails that they carry a mortal poison in their talons, and the superstitious inhabitants are dreadfully afraid of a single scratch.—See "The Animal kingdom of Baron Cuvier. With Additional Descriptions." Vol. VI, London, 1829.

method by the consideration of an enormous bird, whose place is not yet ascertained; as naturalists are in doubt whether to refer it to the eagle tribe, or to that of the vulture. Its great strength, force and vivacity, might plead for its place among the former; the baldness of its head and neck might be thought to degrade it among the latter. In this uncertainty, it will be enough to describe the bird by the lights we have, and leave future historians to settle its rank in the feathered creation. Indeed, if size and strength, combined with rapidity of flight and rapacity, deserve pre-eminence, no bird can be put in competition with it.

The condor possesses, in a higher degree than the eagle, all the qualities that render it formidable, not only to the feathered kind, but to beasts, and even to man himself. Acosta, Garcilasso, and Desmarchais, assert, that it is eighteen feet across, the wings extended. The beak is so strong as to pierce the body of a cow; and two of them are able to devour it. They

The *Great Harpy* is a bird which has been described under various synonyms, in consequence of the variations which result from age and sex, in its magnitude and plumage. It is found in Brazil, New Granada, and Guyana, where it particularly inhabits the forests of the interior. It is also found in other countries of America, and is peculiar to that continent. It is said to be the most robust and powerful of the feathered race. If the stories told of it be true, the benefits of nature seem, in this way, to be pretty equally distributed to both worlds. While the old can boast of the most terrible of quadrupeds, the fiercest and strongest of birds has fallen to the inheritance of the new. Travellers have assured Mauduyt, that the harpy makes its usual prey on the ai and the unan, and that it often carries off fawns and other young quadrupeds. It also attacks the aras, and the large parrots.

It does not appear very clearly, why this eagle should come under the section of the fisher-eagles, a denomination to which, in many cases, we must not attach much importance, and which is generally applied to those eagles whose thick and short tarsi are altogether or in part naked. The places inhabited by the harpy, and all we know concerning its mode of life, is confirmatory of this observation. Sonnini is persuaded that this bird does not fish, and describes, under the appellation of the great eagle of Guiana, an individual whose size exceeds the usual magnitude of the harpy or destructive eagle. There is every probability of the identity of species in this case, and the individual in question may be the female of the harpy, on the sexual differences of which no well-authenticated observations seem hitherto to have been made. Sonnini has measured and described the individual which he killed, and the only material difference between it and the destructor consists in relative size. It also frequents the hot and humid countries of America. But we cannot expect for a very long time to gain any precise notions respecting a bird whose solitary abode, in the depth of almost impenetrable forests, is so far removed from the habitations of man.

do not even abstain from man himself: but fortunately there are but few of the species; for if they had been plenty, every order of animals must have carried on an unsuccessful war against them. The Indians assert, that they will carry off a deer, or a young calf, in their talons, as eagles would a hare or a rabbit; that their sight is piercing, and their air terrible; that they seldom frequent the forests, as they require a large space for the display of their wings; but that they are found on the sea-shore, and the banks of rivers, whither they descend from the heights of the mountains. By later accounts we learn, that they come down to the sea-shore only at certain seasons, when their prey happens to fail them upon land; that they then feed upon dead fish, and such other nutritious substances as the sea throws upon the shore. We are assured, however, that their countenance is not so terrible as the old writers have represented it; but that they appear of a milder nature than either the eagle or the vulture.*

* It is astonishing, observes Humboldt, that one of the largest of terrestrial birds and animals inhabiting countries which Europeans have been accustomed to visit for more than three centuries, should have so long remained so imperfectly known. The descriptions even of the most modern naturalists and travellers concerning this bird, are replete with contradiction, error, and falsehood. By some, the size and ferocity of the condor have been immeasurably exaggerated; others have confounded it with approximating species, or assumed the differences observed in the bird from infancy to age, as the diagnostic characteristics of sex. Baron Cuvier, in speaking of the form of the condor, after a careful investigation of all that has been written on the subject before Humboldt, expresses himself thus: "Some authors attribute to the condor a brown plumage, and a head clothed with down; others, a fleshy crest on the forehead, and a black and white plumage. It has not yet been described with any precision." Of the two drawings given by Dr Shaw, the second alone bears the least resemblance to the great vulture of the Andes. "But the head," says baron de Humboldt, "is without character. It more resembles that of a cock, than the head of the Peruvian condor: Buffon has not even risked an engraving of this bird. The one added to the edition of his works, at Deux Pouts, is below all criticism."

The baron de Humboldt having resided for seventeen months in the native mountains of the condor, having had occasion constantly to see it in its frequent excursions beyond the limits of perpetual snow, has been enabled to render the most essential service to zoology, by publishing a detailed description of this animal, and the drawings which he sketched of it on the spot.

The name of condor is derived from the Quichua language, the general language of the ancient Incas. It should be written *cuntur*, as other natu-

Condamine has frequently seen them in several parts of the mountains of Quito, and observed them hovering over a flock of sheep; and he thinks they would, at a certain time, have attempted to carry one off, had they not been scared away by the

ralists had previously observed. Europeans, by a corrupt pronunciation, change the Peruvian *u* and *t*, as they change the syllable *hua* into *gua*. They say, for instance, the volcano of Tonguragua, instead of *Tungurachua*, and Andes, instead of *Anti*. Baron de Humboldt thinks, that *cuntur* is derived from *cuntuni*, which signifies to smell well, to spread an odour of fruit, meat, or other aliments. The baron observes, that, as there is nothing more astonishing than the almost inconceivable sagacity with which the condor distinguishes the odour of flesh from an immense distance, the etymologist may be allowed to believe, that both *cuntur* and *cuntuni* come from one and the same unknown root. He has chosen, however, to retain the popular name of condor.

M. Dumeril has separated the condor from the genus *vultur*, and joined it, and the papa, and the oricou, in a new genus, to which he has given the name of *sarcoramphus*. This appears a very judicious distinction; for the crests, or fleshy caruncles, which crown the beak, present a very distinctive character.

The young condor has no feathers. The body, for many months, is covered only with a very fine down, or a frizzled whitish hair, resembling that of the young ululæ. This down disfigures the young bird so much, that it appears almost as large in this state as when adult. The condor at two years old has not the black plumage, but a fawn-coloured brown. The female, up to this period, has not the white collar formed at the bottom of the neck by feathers longer than the others. This collar the Spaniards name *golilla*. From a want of proper attention to these changes produced by age, many naturalists, and even the inhabitants of Peru themselves, who take little interest in ornithology, have announced two species of condors, black and brown (*condor negroy condor pardo*). M. de Humboldt has met persons, even in the city of Quito, who assured him, that the female of the condor is distinguished from the male not only by the absence of the nasal crest, but also by the want of the collar. Gmelin and the Abbe Molina make the same assertion. It is, however, quite certain, that such is not the fact. At Riobambo, in the environs of Chimborazo and Antisana, the hunters are thoroughly acquainted with the influence produced by age on the form and colour of the condor; and for the most exact notions concerning those varieties we are indebted to them.

The beak of the condor is straight in the upper part, but extremely crooked at the extremity. The lower jaw is much shorter than the upper. The fore part of this enormous beak is white, the rest of a grayish brown, and not black, as stated by Linnæus. The head and neck are naked, and covered with a hard, dry and wrinkled skin; this same skin is reddish, but furnished here and there with brown or blackish hairs, short and very stiff. The cranium is singularly flat at the summit; as is the case with all very ferocious animals.

The fleshy, or rather cartilaginous crest of the condor occupies the summit of the head, and one-fourth of the length of the beak. This crest is en-

shepherds. Labat acquaints us, that those who have seen this animal, declare that the body is as large as that of a sheep; and that the flesh is tough, and as disagreeable as carrion. The Spaniards themselves seem to dread its depredations; and there have been many instances of its carrying off their children.

tirely wanting in the female, and M. Daudin has erroneously attributed it to her. It is of an oblong figure, wrinkled, and very slender. The ear of the condor exhibits a very considerable aperture; but it is concealed under the folds of the temporal membrane. The eye is singularly elongated, more remote from the beak than in the eagles; very lively, and of a purple colour. The entire neck is garnished with parallel wrinkles; but the skin is less flaccid than that which covers the throat. These wrinkles are placed longitudinally; and arise from the habit of this vulture of contracting its neck, and concealing it in the collar, which answers the purpose of a hood. This collar, which is neither less broad, nor less white in the adult female than in the male, is formed of a fine silken down. It is a white band, which separates from the naked part of the neck the body of the bird furnished with genuine feathers. Linnæus, and after him Daudin, have both asserted, but without foundation, that this collar is wanting in the female. In both sexes, the hood is not entire; it does not close exactly in front, and the neck is naked as far as the place where the black feathers commence.

The rest of the bird, back, wings and tail, are of a black slightly grayish. The plumes are sometimes of a brilliant black; most frequently, however, this black borders on a gray. They are of a triangular figure, and cover each other mutually, like tiles.

The feet are very robust, and of an ashen blue, ornamented with white wrinkles; the talons are of a blackish colour; they are not much crooked, but remarkably long. The four toes are united by a very flaccid, but very perceptible membrane. The fourth toe is very small, and its talon is most curved.

M. de Humboldt has seen no condor, the envergure of which, or measurement of wing from tip to tip, exceeded nine feet French measure. Many persons in Quito and the Andes, worthy of the highest credit, assured M. de Humboldt, that they never killed any that exceeded eleven feet in the envergure. Even on a careful examination of the narratives of travellers, who visited these regions previously to M. de Humboldt, it will appear that, among the naturalists who have measured the vulture of the Andes, there are but few who assign to it a very extraordinary size. From every authentic account of the dimensions of the condor, it appears that this bird is not larger than the *vultur barbatus*, or læmmer-geyer, which inhabits the central chain of the mountains of Europe, and with which both Buffon and Molina have confounded it. It has been with the condor as with Patagonians and so many other objects of descriptive natural history,—the more they have been examined, the more have their enormous dimensions been found to diminish. The average length of the condors, from the point of the beak to the end of the tail, is but three feet three inches. Their usual envergure eight or nine feet. Some individuals from a superabundant supply of aliment or other causes, may have attained an extent of wings of fourteen feet.

Mr Strong, the master of a ship, as he was sailing along the coasts of Chili, in the thirty-third degree of south latitude, observed a bird sitting upon a high cliff near the shore, which some of the ship's company shot with a leaden bullet and killed.

The condor, like the llama, the vicuuna, the alpaca, and several alpine plants, is peculiar to the chain of the Andes. The region of the globe which he appears to prefer to every other is of an elevation of from 1600 to 2500 toises. Whenever the baron and his friend M. Bonpland were led, in the course of their herborizing excursions, to the limits of perpetual snows, they were always surrounded by condors. There they used to find them, three or four in number, on the points of the rocks. They exhibited no distrust, and suffered themselves to be approached within a couple of toises. They did not appear to have the slightest inclination to attack. Baron de Humboldt declares that, after the utmost research, he never heard a single example quoted of a condor having carried off a child, as has been so frequently reported. M. de Humboldt does not, however, doubt that two condors would be capable of depriving a child of ten years of age of life, or even a grown man. It is very common to see them attack a young bull, and tear out his tongue and eyes. The beak and talons of the condor are of the most enormous force. Nevertheless all the Indians who inhabit the Andes of Quito are unanimous that this bird is not dangerous to man.

Though the condor exclusively belongs to the chain of the Andes ; though it prefers situations more elevated than the peak of Teneriffe or the summits of Mont-Blanc ; though of all animals, it is the one which removes to the greatest distance from the surface of our planet ; it is yet not less true, that hunger will sometimes induce it to descend into the plains, and more especially into those which border on this mighty mountain chain. Condors are to be seen even on the shores of the southern ocean, especially in the cold and temperate latitudes of Chili, where the chain of the Andes may be almost said to border on the margin of the Pacific. Still it is observed that this bird sojourns but a few hours in these lower regions. It prefers the mountain solitudes, where it respires a rarefied atmosphere, in which the barometer does not rise above 16. On this account, in the Andes of Peru and Quito, many small groupes of rocks, and platforms elevated 2450 toises above the level of the sea, bear the names of *Cuntur-Kahua*, *Cuntur-Palti*, *Cuntur-Huachana*, names signifying, in the Inca language, watch-tower, brooding place, or nest, of the condors.

M. de Humboldt was assured that the condor builds no nest ; that it deposits its eggs on the naked rock, without surrounding them with straw or leaves. The eggs are said to be altogether white, and from three to four inches in length. It is also reported that the female remains with the little ones for the space of an entire year. When the condor descends into the plains, it prefers alighting on the ground to perching in the trees, like the vultur aura. The talons of the condor are very straight ; and it is a remark of Aristotle, that birds of prey with very crooked talons are not fond of settling upon stones or rocks.

The habits of the condor are similar to those of the læmmer-geyer. If it is not larger than the latter, it appears to be superior in strength and audacity. Two condors will dart upon the deer of the Andes, upon the puma, the vi-

They were greatly surprised when they beheld its magnitude ; for when the wings were extended, they measured thirteen feet from one tip to the other. One of the quills was two feet four inches long ; and the barrel or hollow part, was six inches and three quarters, and an inch and a half in circumference.

We have a still more circumstantial account of this amazing bird, by P. Feuille, the only traveller who has accurately described it : " In the valley of Ilo, in Peru, I discovered a condor perched on a high rock before me : I approached within gun-shot, and fired ; but as my piece was only charged with swan-shot, the lead was not able sufficiently to pierce the bird's feathers. I perceived however, by its manner of flying, that it was wounded ; and it was with a good deal of difficulty that it flew to another rock, about five hundred yards distant on the sea-shore. I therefore charged again with ball, and hit the bird under the throat, which made it mine. I accordingly ran up to seize it ; but even in death it was terrible, and defended itself upon its back with its claws extended against me, so that

cunna, and the guanaco. They will even attack a heifer. They pursue it for a long time, wounding it with their beak and talons, until the animal, breathless and overwhelmed with fatigue, thrusts out its tongue bellowing. The condor then seizes the tongue, a morsel to which it is much attached. It also tears out the eyes of its victim, which sinks to the earth, and slowly expires. In the province of Quito, the mischief done to cattle, but more especially to sheep and cows by this formidable bird, is immense. In the savannahs of Antisana, 2101 toises above the level of the sea, bulls are constantly found which have been wounded in the back by condors.

The condor appears to have more tenacity of life than any other bird of prey. M. de Humboldt was present at certain experiments on the life of a condor at Riobamba. They first attempted to strangle it with a noose. They hung it to a tree, and dragged the legs with great force for many minutes : but scarcely was the noose removed, than the condor began to walk about as if nothing had been the matter. Three pistol-balls were then discharged at him within less than four paces distance. They all entered the body. He was wounded in the neck, chest, and belly, but still remained on his feet. A fifth ball struck against the femur, and rebounding, fell back on the ground. This ball was for a long time preserved by M. Bonpland. The condor did not die for half an hour after of the numerous wounds which it had received. Ulloa informs us, that in the cold region of Peru the condor is closely furnished with feathers, that eight or ten balls may strike against his body, without one piercing it.

It is worthy of observation that the condor prefers carcases to living animals. It subsists, however, on both, and seems to pursue small birds less than quadrupeds.

I scarcely knew how to lay hold of it. Had it not been mortally wounded, I should have found it no easy matter to take it; but I at last dragged it down from the rock, and with the assistance of one of the seamen, I carried it to my tent to make a coloured drawing.

“The wings of this bird, which I measured very exactly, were twelve feet three inches (English) from tip to tip. The great feathers, that were of a beautiful shining black, were two feet four inches long. The thickness of the beak was proportionable to the rest of the body; the length about four inches; the point hooked downwards, and white at its extremity; the other part was of a jet black. A short down of a brown colour, covered the head; the eyes were black, and surrounded with a circle of reddish brown. The feathers on the breast, neck, and wings, were of a light brown; those on the back were rather darker. Its thighs were covered with brown feathers to the knee. The thigh-bone was ten inches long; the leg five inches; the toes were three before, and one behind: that behind was an inch and a half; and the claw with which it was armed was black, and three quarters of an inch. The other claws were in the same proportion; and the legs were covered with black scales, as also the toes; but in these the scales were larger.

“These birds usually keep in the mountains, where they find their prey: they never descend to the sea-shore but in the rainy season; for, as they are very sensible of cold, they go there for greater warmth. Though these mountains are situated in the torrid zone, the cold is often very severe; for a great part of the year, they are covered with snow, but particularly in winter.

“The little nourishment which these birds find on the sea-coast, except when the tempest drives in some great fish, obliges the condor to continue there but a short time. They usually come to the coast at the approach of evening; stay there all night, and fly back in the morning.”

It is doubted whether this animal be proper to America only, or whether it may not have been described by the naturalists of other countries. It is supposed that the great bird called the Rock, described by Arabian writers, and so much exaggerated by fable, is but a species of the condor. The great bird of Tarnassar, in the East Indies, that is larger than the eagle, as well

as the vulture of Senegal, that carries off children, are probably no other than the bird we have been describing. Russia, Lapland, and even Switzerland and Germany, are said to have known this animal. A bird of this kind was shot in France, that weighed eighteen pounds, and was said to be eighteen feet across the wings; however, one of the quills was described only as being larger than that of a swan; so that, probably, the breadth of the wings may have been exaggerated, since a bird so large would have the quills more than twice as big as those of a swan. However this be, we are not to regret that it is scarcely ever seen in Europe, as it appears to be one of the most formidable enemies of mankind. In the deserts of Pachomac, where it is chiefly seen, men seldom venture to travel. Those wild regions are very sufficient of themselves to inspire a secret horror: broken precipices—prowling panthers—forests only vocal with the hissing of serpents—and mountains rendered still more terrible by the condor, the only bird that ventures to make its residence in those deserted situations.

CHAP. IV.

OF THE VULTURE AND ITS AFFINITIES.

THE first rank in the description of birds has been given to the eagle; not because it is stronger or larger than the vulture, but because it is more generous and bold. The eagle, unless pressed by famine, will not stoop to carrion; and never devours but what he has earned by his own pursuit. The vulture, on the contrary, is indelicately voracious; and seldom attacks living animals when it can be supplied with the dead. The eagle meets and singly opposes his enemy; the vulture, if it expects resistance, calls in the aid of its kind, and basely overpowers its prey by a cowardly combination. Putrefaction and stench, instead of deterring, only serves to allure them. The vulture seems among birds what the jackal and hyæna are among quadrupeds, who prey upon carcases, and root up the dead.

Vultures may be easily distinguished from all those of the eagle kind, by the nakedness of their heads and necks, which are

without feathers, and only covered with a very slight down, or a few scattered hairs. Their eyes are more prominent; those of the eagle being buried more in the socket. Their claws are shorter, and less hooked. The inside of the wing is covered with a thick down, which is different in them from all other birds of prey. Their attitude is not so upright as that of the eagle; and their flight more difficult and heavy.

In this tribe we may range the golden, the ash-coloured, and the brown vulture, which are inhabitants of Europe; the spotted and the black vulture of Egypt; the bearded vulture; the Brazilian vulture, and the king of the vultures, of South America. They all agree in their nature; being equally indolent, yet rapacious and unclean.*

* It would be idle to notice all the species of vultures which have been enumerated by naturalists. To do so would, in fact, be to dwell for the most part on a series of names, which have been constantly applied to the same species seen under different modifications. M. Vieillot remarks, that, after having observed the living vultures under the various metamorphoses which the difference of age occasions in their plumage, and having most attentively studied the subject, he is fully convinced that few of their genera are composed of as many species as some naturalists have adopted without examination, and others have repeated without reflection. Brisson, Gmelin, and Latham have described seven or eight species of vultures in Europe, though it appears more than probable that there are but three or four.

Of all the characters drawn from the anterior portion of the body in the vulture tribe, the most distinct is the greater or less degree of nudity of the head and neck. To this may be added, that they differ from the eagles with which they have been vulgarly confounded, by having their eyes on a level with the head, while the eyes of the others are sunk within their orbits. They differ also in their discovered ears, in the form of their claws, (those of the eagle, properly so called, being almost semicircular,) and in the tarsi, which, in the known species, are totally naked. Besides these characters, which are merely methodical, there are others of a more prominent kind which cannot lead into error, nor permit the confusion of the genuine vultures with any of the other birds of prey. Their port is inclined, half horizontal, a position indicating their grovelling nature; whereas the eagle stands proudly upright and almost perpendicular on its feet. On the ground, to which, by the way, they are much attached, their wings are pendant, and their tail trailed along. Accordingly, we find the end of the penfeathers constantly worn. Their flight is heavy, and they experience considerable difficulty in taking their full soar. Finally, they are the only birds of prey that fly and live gregariously.

Their mode of life, disposition, and habits, exhibit characters still more marked. The vultures are cowardly, disgusting, gormandizing in the extreme, voracious, and cruel. They rarely attack living animals, but when they can no longer satiate themselves on dead bodies. They attack a single

The GOLDEN VULTURE seems to be the foremost of the kind ; and is, in many things, like the golden eagle, but larger in every proportion. From the end of the beak to that of the tail, it is four feet and a half ; and to the claws' end, forty-five inches. The length of the upper mandible is almost seven inches ; and the tail twenty-seven in length. The lower part of the neck, breast, and belly, are of a red colour ; but on the tail it is more faint, and deeper near the head. The feathers are black on the back ; and on the wings and tail of a yellowish brown. Others of the kind differ from this in colour and dimensions ; but they are all strongly marked by their naked heads, and beak straight in the beginning, but hooking at the point.

They are still more strongly marked by their nature, which, enemy with numbers, and tear carcasses even to the very bone. They are attracted by the savour of corruption and infection. The hawks, the falcons, and even the smallest birds of this order, exhibit more courage than the vultures ; for they hunt their prey alone, almost all of them disdain dead flesh, and will reject that which is corrupted. Comparing birds with quadrupeds, the vulture appears to unite the strength and cruelty of the tiger with the cowardice and gormandism of the chacal, which likewise joins in troops to devour carrion and root up the dead : while the eagle has the courage, nobleness, magnanimity, and generosity of the lion.

Endowed with a sense of smelling extremely keen, the odour of corrupted flesh attracts the vultures from a considerable distance. They fly towards it in flocks, and all the species are admitted indiscriminately to the disgusting banquet. If pressed by hunger, they will descend near the habitations of men, but they never attempt an attack except on the peaceable and timid tenants of the poultry yard.

The vultures are more numerous in the southern than in the northern parts of the globe. Still, it does not appear that they dread the cold, and seek warmth in preference ; for in our part of the world they live in the greatest numbers on the highest mountains, and descend but rarely into the plains. In the hot climates, such as Egypt, where they are very numerous and of great utility, because they clear the surface of the earth of the debris of dead animals, and prevent the ill consequences of putrefaction, they are more frequently seen upon the plain than in the mountains. They approach inhabited places, and spread themselves at day break in the towns and villages, and render essential service to the inhabitants by gorging themselves with the filth and carrion accumulated in the streets. In our climates the vultures during the fine season, inhabit the most lofty and deserted mountains : there, says Belon, they build their nests against shelvy rocks and in inaccessible situations. Authors are not agreed as to the number of their eggs, some stating it at two, others more. They do not carry food for their young in their talons, like the eagles, which even tear their prey in the air to distribute it to their family ; but they fill their crop, and then disgorge the contents into the beaks of the little ones. In winter they migrate into a warmer climate.

as has been observed, is cruel, unclean, and indolent. Their sense of smelling, however, is amazingly great; and Nature, for this purpose, has given them two large apertures or nostrils without, and an extensive olfactory membrane within.* Their intestines are formed differently from those of the eagle kind; for they partake more of the formation of such birds as live upon grain. They have both a crop and a stomach; which may be regarded as a kind of gizzard, from the extreme thickness of the muscles of which it is composed. In fact, they seem adapted inwardly, not only for being carnivorous, but to eat corn or whatsoever of that kind comes in the way.

This bird, which is common in many parts of Europe, and but too well known on the western continent, is totally unknown in England. In Egypt, Arabia, and many other kingdoms of Africa and Asia, vultures are found in great abundance. The inside down of their wing is converted into a very warm and comfortable kind of fur, and is commonly sold in the Asiatic markets.

Indeed, in Egypt, this bird seems to be of singular service. There are great flocks of them in the neighbourhood of Grand Cairo, which no person is permitted to destroy. The service they render the inhabitants is the devouring of all the carrion and filth of that great city; which might otherwise tend to corrupt and putrefy the air. They are commonly seen in company

* It is now imagined by naturalists, that it is the eye, and not the scent, which leads birds to their prey. The toucan is a bird which ranks next to the vulture in discerning, whether by smell or sight, the carrion on which it feeds. The immense size of its bill, which is many times larger than its head, was supposed to present in its honeycomb texture an extensive prolongation of the olfactory nerve, and thus to account for its smelling at great distances; but on accurate examination, the texture above mentioned in the bill is found to be mere diploe, to give the bill strength. Now the eye of this bird is somewhat larger than the whole brain; and it has been ascertained by direct experiments, that where very putrid carrion was inclosed in a basket from which effluvia could freely emanate, but which concealed the offal from sight, it attracted no attention from vultures and other birds of prey till it was exposed to their view, when they immediately recognized their object, and others came rapidly from different quarters of the horizon where they were invisible a few minutes before. This sudden appearance of birds of prey from immense distances and in every direction, however the wind may blow, is accounted for by their soaring to an altitude. In this situation, their prey on the ground is seen by them, however minute it may be; and therefore their appearance in our sight is merely their descent from high regions to within the scope of our optics.

with the wild dogs of the country, tearing a carcase very deliberately together. This odd association produced no quarrels; the birds and quadrupeds seem to live amicably, and nothing but harmony subsists between them. The wonder is still the greater, as both are extremely rapacious, and both lean and bony to a very great degree; probably having no great plenty even of the wretched food on which they subsist.

In America they lead a life somewhat similar. Wherever the hunters, who there only pursue beasts for the skins, are found to go, these birds are seen to pursue them. They still keep hovering at a little distance; and when they see the beast flayed and abandoned, they call out to each other, pour down upon the carcase, and, in an instant, pick its bones as bare and clean as if they had been scraped by a knife.

At the Cape of Good Hope, in Africa, they seem to discover a still greater share of dexterity in their methods of carving. "I have," says Kolben, "been often a spectator of the manner in which they have anatomized a dead body: I say anatomized; for no artist in the world could have done it more cleanly. They have a wonderful method of separating the flesh from the bones, and yet leaving the skin quite entire. Upon coming near the carcase, one would not suppose it thus deprived of its internal substance, till he began to examine it more closely; he then finds it, literally speaking, nothing but skin and bone. Their manner of performing the operation is this: they first make an opening in the belly of the animal, from whence they pluck out, and greedily devour, the entrails: then entering into the hollow which they have made, they separate the flesh from the bones, without ever touching the skin. It often happens that an ox returning home alone to its stall from the plough, lies down by the way: it is then, if the vultures perceive it, that they fall with fury down, and inevitably devour the unfortunate animal. They sometimes attempt them grazing in the fields; and then to the number of a hundred or more, make their attack all at once and together."

"They are attracted by carrion," says Catesby, "from a very great distance. It is pleasant to behold them, when they are thus eating and disputing for their prey. An eagle generally presides at these entertainments, and makes them all keep their distance till he has done. They then fall to with an excellent

appetite ; and their sense of smelling is so exquisite, that the instant a carcase drops, we may see the vultures floating in the air from all quarters, and come sousing on their prey." It is supposed by some, that they eat nothing that has life ; but this is only when they are not able ; for when they come at lambs, they show no mercy ; and serpents are their ordinary food. The manner of those birds is to perch themselves, several together, on the old pine and cypress-trees ; where they continue all the morning, for several hours, with their wings unfolded ; nor are they fearful of danger, but suffer people to approach them very near, particularly when they are eating.

The sloth, the filth, and the voraciousness, of these birds, almost exceeds credibility. In the Brasils, where they are found in great abundance, when they light upon a carcase, which they have liberty to tear at their ease, they so gorge themselves that they are unable to fly ; but keep hopping along when they are pursued. At all times, they are a bird of slow flight, and unable readily to raise themselves from the ground ; but when they have over-fed, they are then utterly helpless : but they soon get rid of their burden ; for they have a method of vomiting up what they have eaten, and then they fly off with greater facility.

It is pleasant, however, to be a spectator of the hostilities between animals that are thus hateful or noxious. Of all creatures, the two most at enmity is the vulture of Brasil and the crocodile. The female of this terrible amphibious creature, which in the rivers of that part of the world grows to the size of twenty-seven feet, lays its eggs, to the number of one or two hundred, in the sands, on the side of the river, where they are hatched by the heat of the climate. For this purpose, she takes every precaution to hide from all other animals the place where she deposits her burden : in the mean time a number of vultures, or galinassos, as the Spaniards call them, sit silent and unseen in the branches of some neighbouring forest, and view the crocodile's operations, with the pleasing expectation of succeeding plunder. They patiently wait till the crocodile has laid the whole number of her eggs, till she has covered them carefully under the sand, and until she is retired from them to a convenient distance. Then, all together, encouraging each other with cries, they pour down upon the nest, hook up the

sand in a moment, lay the eggs bare, and devour the whole brood without remorse. Wretched as is the flesh of these animals, yet men, perhaps when pressed by hunger, have been tempted to taste it. Nothing can be more lean, stringy, nauseous, and unsavoury. It is in vain that, when killed, the rump has been cut off; in vain the body has been washed, and spices used to overpower its prevailing odour; it still smells and tastes of the carrion by which it was nourished, and sends forth a stench that is insupportable.

These birds, at least those of Europe, usually lay two eggs at a time, and produce but once a year. They make their nests in inaccessible cliffs, and in places so remote, that it is rare to find them. Those in our part of the world chiefly reside in the places where they breed, and seldom come down into the plains, except when the snow and ice, in the native retreats, has banished all living animals but themselves: they then come from their heights, and brave the perils they must encounter in a more cultivated region. As carrion is not found, at those seasons, in sufficient quantity, or sufficiently remote from man to sustain them, they prey upon rabbits, hares, serpents, and whatever small game they can overtake or overpower.

Such are the manners of this bird in general; but there is one of the kind, called the king of the vultures, which from its extraordinary figure, deserves a separate description. This bird is a native of America, and not of the East Indies, as those who make a trade of showing birds would induce us to believe. This bird is larger than a turkey-cock; but is chiefly remarkable for the odd formation of the skin of the head and neck, which is bare. This skin arises from the base of the bill, and is of an orange colour; from whence it stretches on each side to the head; from thence it proceeds, like an indented comb, and falls on either side, according to the motion of the head. The eyes are surrounded by a red skin, of a scarlet colour; and the iris has the colour and lustre of pearl. The head and neck are without feathers, covered with a flesh-coloured skin on the upper part, a fine scarlet behind the head, and a duskier coloured skin before: farther down, behind the head, arises a little tuft of black down, from whence issues and extends beneath the throat, on each side, a wrinkled skin, of a brownish colour, mixed with blue, and reddish behind: below, upon the naked part of the

neck, is a collar formed by soft longish feathers, of a deep ash-colour, which surround the neck, and cover the breast before. Into this collar the bird sometimes withdraws its whole neck, and sometimes a part of its head, so that it looks as if it had withdrawn the neck into the body. Those marks are sufficient to distinguish this bird from all others of the vulture kind; and it cannot be doubted, but that it is the most beautiful of all this deformed family; however, neither its habits nor instincts vary from the rest of the tribe; being, like them, a slow cowardly bird, living chiefly upon rats, lizards, and serpents; and upon carrion or excrement, when it happens to be in the way. The flesh is so bad, that even savages themselves cannot abide it.

CHAP. V.

OF THE FALCON KIND, AND ITS AFFINITIES.

EVERY creature becomes more important in the history of nature in proportion as it is connected with man. In this view, the smallest vegetable, or the most seemingly contemptible insect, is a subject more deserving attention than the most flourishing tree, or the most beautiful of the feathered creation. In this view, the falcon is a more important animal than the eagle or the vulture; and though so very diminutive in the comparison, is notwithstanding, from its connexion with our pleasures, a much more interesting object of curiosity.

The amusement of hawking, indeed, is now pretty much given over in this kingdom; for as every country refines, as its inclosures become higher and closer, those rural sports must consequently decline, in which the game is to be pursued over a long extent of country; and where, while every thing retards the pursuer below, nothing can stop the object of his pursuit above.

Falconry, that is now so much disused among us, was the principal amusement of our ancestors. A person of rank scarcely stirred out without his hawk on his hand; which, in old paintings, is the criterion of nobility. Harold, afterwards king of England, when he went on a most important embassy into

Normandy, is drawn in an old bas-relief, as embarking with a bird on his fist, and a dog under his arm. In those days it was thought sufficient for noblemen's sons to wind the horn, and to carry their hawk fair, and leave study and learning to the children of meaner people. Indeed, this diversion was in such high esteem among the great all over Europe, that Frederic, one of the emperors of Germany, thought it not beneath him to write a treatise upon hawking.

The expense which attended this sport was very great : among the old Welch princes, the king's falconer was the fourth officer in the state ; but notwithstanding all his honours, he was forbid to take more than three draughts of beer from his horn, lest he should get drunk and neglect his duty. In the reign of James I. Sir Thomas Monson is said to have given a thousand pounds for a cast of hawks ; and such was their value in general, that it was made felony in the reign of Edward III. to steal a hawk. To take its eggs, even in a person's own ground, was punishable with imprisonment for a year and a day, together with a fine at the king's pleasure. In the reign of Elizabeth the imprisonment was reduced to three months ; but the offender was to lie in prison till he got security for his good behaviour for seven years farther. In the earlier times the art of gunning was but little practised, and the hawk was then valuable, not only for its affording diversion, but for its procuring delicacies for the table, that could seldom be obtained any other way.

Of many of the ancient falcons used for this purpose, we at this time know only the names, as the exact species are so ill described, that one may be very easily mistaken for another. Of those in use, at present, both here and in other countries, are the gyr-falcon, the falcon, the lanner, the sacre, the hobby, the kestrel, and the merlin.* These are called the long-winged

* The *Jer-Falcon* is of very rare occurrence in England. It is known in the northern parts of Scotland, particularly in the Orkney and Shetland Isles.

Iceland is the native country of this species, from whence arises its name of *islandicus*. It was from this island that the royal falconries of Denmark and other northern kingdoms were supplied with their choicest casts of hawks. It breeds in the highest and most inaccessible rocks ; but the number and colour of the eggs remain as yet undescribed.—It preys upon the larger species of game and wild-fowl, also on hares and other quadrupeds, upon which it precipitates itself with amazing rapidity and force. Its usual mode of hawking is, if possible, to out-soar its prey, and thence to dart perpendicularly upon it.

hawks, to distinguish them from the goss hawk, the sparrowhawk, the kite, and the buzzard, that are of shorter wing, and either too slow, too cowardly, too indolent, or too obstinate, to be serviceable in contributing to the pleasures of the field.

The uncertainty in which the history of the *Peregrine Falcon* was long involved, appears to have arisen from the error of earlier writers, in considering the *Falco Peregrinus* and *Falco communis*, with its enumerated varieties, as two distinct species.

Deficiency of observation, and consequent want of an accurate knowledge of the various changes of plumage the bird undergoes in its progress to maturity, naturally led to this effect; and we accordingly find, that the bird hitherto described as the *Falco Communis*, the type of the supposed species, and its varieties, must have been originally figured from an immature specimen of the *Falco Peregrinus*.

In England and Wales the Peregrine Falcon is rare, and is only found indigenous in rocky or mountainous districts. The Highlands and Northern Isles of Scotland appear to be the situations most favourable to it, and in that part of the kingdom it is numerous and widely diffused.—The most inaccessible situations are always selected for its eyry, and its nest is placed upon the shelf of a rock. It lays four or five eggs, in colour very similar to those of the Kestrel, but considerably larger.

The flight of this species, when pursuing its quarry, is astonishingly rapid, almost beyond credibility. By MONTAGU it has been reckoned at 150 miles in an hour. Colonel THORNTON, an expert falconer, estimated the flight of a falcon, in pursuit of a snipe, to have been nine miles in eleven minutes, without including the frequent turns. This sort was formerly much used in falconry, and was flown at the larger kinds of game, wild ducks and herons. In its unreclaimed state it preys upon the different sorts of game, wild geese, wild ducks and pigeons.

In England, the *Hobby* is among the number of those birds that are named Polar Migrants or summer periodical Visitants. It arrives in April, and after performing the offices of incubation, and of rearing its young, leaves us, for warmer latitudes, in October.

Wooded and inclosed districts appear to be its usual haunts. It builds in lofty trees, but will sometimes save itself the task of constructing a nest, by taking possession of the deserted one of a magpie or crow. The number of its eggs is commonly four, of a bluish-white, with olive-green or yellowish-brown blotches. Its favourite game is the lark, but it preys upon all small birds. Partridges and quails also become frequent victims to its courage and rapacity, in which qualities, diminutive as it is, it yields to none of its tribe. Possessing a great length and power of wing, the flight of the hobby is wonderfully rapid, and can be supported with undiminished vigour for a considerable time. When hawking was keenly followed, the hobby was trained to the pursuit of young partridges, snipes, and larks. It is of elegant form, and resembles, in miniature, the peregrine falcon. The wings, when closed, generally reach beyond the end of the tail.—According to TEMMINCK, it is common throughout Europe, during the summer months; but retires to warmer regions at the approach of winter.

Kestrel.—This well known species is distinguished, not only by the sym-

The generous tribe of hawks,* as was said, are distinguished from the rest by the peculiar length of their wings, which reach nearly as low as the tail. In these, the first quill of the wing is nearly as long as the second; it terminates in a point, which

metry of its form and its elegant plumage, but by the peculiar gracefulness of its flight, and the manner in which it frequently remains suspended in the air, fixed, as it were, to one spot, by a quivering play of the wings, scarcely perceptible. It is one of our commonest indigenous species, and is widely spread through the kingdom. Upon the approach of spring (or the period of incubation), it resorts to rocks and high cliffs. The nest consists of a few sticks loosely put together, and sometimes lined with a little hay or wool; and is placed in some crevice, or on a projecting shelf.

The eggs are from four to six in number, of a reddish-brown colour, with darker blotches and variegations.—It preys upon the different species of mice, which it hunts for from the elevated station at which it usually soars, and upon which it pounces with the rapidity of an arrow.

The kestrel is easily reclaimed, and was formerly trained to the pursuit of larks, snipes, and young partridges. It is a species, in point of geographical distribution, very widely spread, being found in all parts of Europe, and in America.

The *merlin* has generally been considered a winter or equatorial visitant, and to leave Great Britain at the approach of spring, for other and more northern climates. Its migration is however confined to the southern parts of the island.

Inferior as this species is in size, it fully supports the character of its tribe; frequently attacking birds superior to itself in magnitude and weight, and has been known to kill a partridge at a single blow.—Like others, before enumerated, it became subjected to the purposes of pastime, and was trained to pursue partridges, snipes, and woodcocks. Its flight is low and rapid, and it is generally seen skimming along the sides of hedges in search of its prey.

* *The Goshawk*.—This powerful species of falcon is very rarely met with in England. In the wild and mountainous districts of Scotland it is more common, and is known to breed in the forest of Rothiemurchus, and on the wooded banks of the Dee; and, according to Low, in his *Fauna Orcadensis*, is rather numerous in those islands (Orkneys), where it breeds in the rocks and sea-cliffs. Its flight is very rapid, but generally low, and it strikes its prey upon the wing. Different kinds of feathered game, wild ducks, hares and rabbits form its principal food. According to MEYER, it will even prey upon the young of its own species. It generally builds in lofty fir trees, and lays from two to four eggs, of a skim-milk white, marked with streaks and spots of reddish-brown.

By falconers, it was considered to be the best and most courageous of the short-winged hawks, and was accordingly trained to the pursuit of grouse, pheasants, wild geese, herons, &c. Although it is nearly equal in size to the Jer Falcon, yet the shortness of its wings, and its general contour, readily distinguish it from that species, in all its stages of plumage. The Goshawk is very common in France, as well as in Germany, Switzerland,

begins to diminish from about an inch of its extremity. This sufficiently distinguishes the generous breed from that of the baser race of kites, sparrow-hawks and buzzards, in which the tail is longer than the wings, and the first feather of the wing is rounded at the extremity. They differ also in the latter having the fourth feather of the wing the longest; in the generous race it is always the second.

This generous race, which have been taken into the service of man, are endowed with natural powers that the other kinds are not possessed of. From the length of their wings, they are swifter to pursue their game; from a confidence in this swiftness, they are bolder to attack it; and from an innate generosity, they have an attachment to their feeder, and, consequently, a docility which the baser kinds are strangers to.

The gyr-falcon leads in this bold train. He exceeds all other falcons in the largeness of his size, for he approaches nearly to the magnitude of the eagle. The top of the head is flat and of an ash-colour, with a strong, thick, short, and blue beak. The feathers of the back and wings are marked with black spots, in the shape of a heart; he is a courageous and fierce bird, nor fears even the eagle himself; but he chiefly flies at the stork, the heron, and the crane. He is mostly found in the colder regions of the north, but loses neither his strength nor his courage when brought into the milder climates.

and Russia. In Holland it is rare. The "*Falcon gentil*," from its description, must be referred to this species.

The Sparrow-hawk.—This destructive and well known species is remarkable for the great difference in size between the male and female, the former seldom measuring twelve inches in length, whilst the latter often exceeds fifteen inches. It is one of the boldest of its genus, and the female, from her superior size, is a fatal enemy to partridges and other game, as well as pigeons.—It flies low, skimming over the ground with great swiftness, and pounces its prey upon the wing with unerring aim. The force of its stroke is such as generally to kill, and sometimes even to force out the entrails of its victim. It is common in most parts of the kingdom, but particularly frequents the lower grounds, and well wooded inclosures.—It builds in low trees, or thorn bushes, forming a shallow and flat nest, composed of slender twigs, and very similar to that of the ring dove, but rather larger. It will occasionally occupy the deserted nest of a crow.

The sparrow hawk is very widely diffused, and found in all parts of Europe. In the days of Falconry it was trained, and much approved in the pursuit of partridges, quails, and many other birds.

The falcon, properly so called, is the second in magnitude and fame. There are some varieties in this bird; but there seem to be only two that claim distinction; the falcon-gentil and the peregrine-falcon; both are much less than the gyr, and somewhat about the size of a raven. They differ but slightly, and perhaps only from the different states they were in when brought into captivity. Those differences are easier known by experience than taught by description. The falcon-gentil* moults in March, and often sooner; the peregrine-falcon does not moult till the middle of August. The peregrine is stronger in the shoulder, has a larger eye, and yet more sunk in the head; his beak is stronger, his legs longer, and the toes better divided.

Next in size to these is the lanner, a bird now very little known in Europe; then follows the sacre, the legs of which are of a bluish colour, and serve to distinguish that bird; to them succeeds the hobby, used for smaller game, for daring larks, and stooping at quails. The kestrel was trained for the same purposes; and lastly the merlin; which, though the smallest of all the hawk or falcon kind, and not much larger than a thrush, yet displays a degree of courage that renders him formidable even to birds ten times his size. He has often been known to kill a partridge or a quail at a single pounce from above.

Some of the other species of sluggish birds were now and then trained to this sport, but it was when no better could be obtained; but these just described were only considered as birds of the nobler races. Their courage in general was such, that no bird, not very much above their own size, could terrify them; their swiftness so great, that scarcely any bird could escape them; and their docility so remarkable, that they obeyed not only the commands, but the signs of their master. They remained quietly perched upon his hand till their game was flushed, or else kept hovering round his head, without ever leaving him but when he gave permission. The common falcon is a bird of such spirit, that, like a conqueror in a country, he keeps all birds in awe and subjection to his prowess. Where he is seen flying wild, as I often had an opportunity of observing, the birds of every kind, that seemed entirely to disregard the kite or the sparrow-hawk,

* The falcons gentil are now ascertained to be merely the young of the *goshawk*.

fly with screams at his most distant appearance. Long before I could see the falcon, I have seen them with the utmost signs of terror endeavouring to avoid him; and, like the peasants of a country before a victorious army, every one of them attempting to shift for himself. Even the young falcons, though their spirit be depressed by captivity, will, when brought out into the field, venture to fly at barnacles and wild geese, till, being soundly brushed and beaten by those strong birds, they learn their error, and desist from meddling with such unwieldy game for the future.

To train up the hawk to this kind of obedience, so as to hunt for his master, and bring him the game he shall kill, requires no small degree of skill and assiduity. Numberless treatises have been written upon this subject which are now, with the sport itself, almost utterly forgotten: indeed, except to a few, they seem utterly unintelligible; for the falconers had a language peculiar to themselves, in which they conversed and wrote, and took a kind of professional pride in using no other. A modern reader, I suppose, would be little edified by one of the instructions, for instance, which we find in Willoughby, when he bids us "draw our falcon out of the mew twenty days before we en-seam her. If she truss and carry, the remedy is, to cosse her talons, her powse, and petty single."

But, as it certainly makes a part of natural history, to show how much the nature of birds can be wrought upon by harsh or kind treatment, I will just take leave to give a short account of the manner of training a hawk, divested of those cant words with which men of art have thought proper to obscure their profession.

In order to train up a falcon, the master begins by clapping straps upon his legs, which are called *jesses*, to which there is fastened a ring with the owner's name, by which, in case he should be lost, the finder may know where to bring him back. To these also are added little bells, which serve to mark the place where he is, if lost in the chase. He is always carried on the fist, and is obliged to keep without sleeping. If he be stubborn, and attempts to bite, his head is plunged into water. Thus, by hunger, watching, and fatigue, he is constrained to submit to having his head covered by a hood or cowl, which covers his eyes. This troublesome employment continues often for three days and

nights without ceasing. It rarely happens but at the end of this his necessities and the privation of light make him lose all idea of liberty, and bring down his natural wildness. His master judges of his being tamed when he permits his head to be covered without resistance, and when uncovered he seizes the meat before him contentedly. The repetition of these lessons by degrees ensures success. His wants being the chief principle of his dependence, it is endeavoured to increase his appetite by giving him little balls of flannel, which he greedily swallows. Having thus excited the appetite, care is taken to satisfy it; and thus gratitude attaches the bird to the man who but just before had been his tormentor.

When the first lessons have succeeded, and the bird shows signs of docility, he is carried out upon some green, the head is uncovered, and, by flattering him with food at different times, he is taught to jump on the fist, and to continue there. When confirmed in this habit, it is then thought time to make him acquainted with the lure. This lure is only a thing stuffed like the bird the falcon is designed to pursue, such as a heron, a pigeon, or a quail, and on this lure they always take care to give him his food. It is quite necessary that the bird should not only be made acquainted with this, but fond of it, and delicate in his food when shown it. When the falcon has flown upon this, and tasted the first morsel, some falconers then take it away; but by this there is a danger of daunting the bird; and the surest method is, when he flies to seize it, to let him feed at large, and this serves as a recompense for his docility. The use of this lure is to flatter him back when he has flown in the air, which it sometimes fails to do; and it is always requisite to assist it by the voice and the signs of the master. When these lessons have been long repeated, it is then necessary to study the character of the bird; to speak frequently to him, if he be inattentive to the voice; to stint in his food such as do not come kindly or readily to the lure; to keep waking him, if he be not sufficiently familiar; and to cover him frequently with the hood, if he fears darkness. When the familiarity and the docility of the bird are sufficiently confirmed on the green, he is then carried into the open fields, but still kept fast by a string, which is about twenty yards long. He is then uncovered as before; and the falconer, calling him at some paces distance, shows him the lure. When

he flies upon it, he is permitted to take a large morsel of the food which is tied to it. The next day the lure is shown him at a greater distance, till he comes at last to fly to it at the utmost length of his string. He is then to be shown the game itself alive, but disabled or tame, which he is designed to pursue. After having seized this several times with his string, he is then left entirely at liberty, and carried into the field for the purpose of pursuing that which is wild. At that he flies with avidity; and when he has seized it, or killed it, he is brought back by the voice and the lure.

By this method of instruction, a hawk may be taught to fly at any game whatsoever; but falconers have chiefly confined their pursuit only to such animals as yield them profit by the capture, or pleasure in the pursuit. The hare, the partridge, and the quail, repay the trouble of taking them; but the most delightful sport is the falcon's pursuit of the heron, the kite, or the wood-lark. Instead of flying directly forward, as some other birds do, these, when they see themselves threatened by the approach of the hawk, immediately take to the skies. They fly almost perpendicularly upward, while their ardent pursuer keeps pace with their flight, and tries to rise above them. Thus both diminish by degrees from the gazing spectator below, till they are quite lost in the clouds; but they are soon seen descending, struggling together, and using every effort on both sides; the one of rapacious insult, the other of desperate defence. The unequal combat is soon at an end; the falcon comes off victorious, and the other killed or disabled, is made a prey either to the bird or the sportsman.

As for other birds they are not so much pursued, as they generally fly straight forward, by which the sportsman loses sight of the chase, and what is still worse, runs a chance of losing his falcon also. The pursuit of the lark, by a couple of merlins, is considered to him only who regards the sagacity of the chase, as one of the most delightful spectacles this exercise can afford. The amusement is to see one of the merlins climbing to get the ascendant of the lark, while the other lying low for the best advantage, waits the success of its companion's efforts; thus while the one stoops to strike its prey, the other seizes it at its coming down.

Such are the natural and acquired habits of these birds, which,

of all others, have the greatest strength and courage relative to their size. While the kite or the goss-hawk approach their prey sideways, these dart perpendicularly, in their wild state, upon their game, and devour it on the spot, or carry it off, if not too large for their power of flying. They are sometimes seen descending perpendicularly from the clouds, from an amazing height, and darting down on their prey with inevitable swiftness and destruction.

The more ignoble race of birds make up by cunning and assiduity what these claim by force and celerity. Being less courageous, they are more patient; and having less swiftness, they are better skilled at taking their prey by surprise. The kite, that may be distinguished from all the rest of this tribe by his forked tail and his slow floating motion, seems almost for ever upon the wing.* He appears to rest himself, upon the bosom of the air, and not to make the smallest effort in flying. He lives only upon accidental carnage, almost every bird in the air is able to make good its retreat against him. He may be, therefore, considered as an insidious thief, who only prowls about, and when he finds a small bird wounded or a young chicken

* The Kite is variously diffused throughout England, being a common bird in many parts of the country, and rare in others. In all the wooded districts of the eastern and midland counties it is abundant: it is also met with in Westmoreland; but is seldom seen in the northern parts of Yorkshire, in Durham, or Northumberland. In Scotland, it occurs plentifully in Aberdeenshire, and is found also in the immediate vicinity of Loch Katerine, and of Ben Lomond. It is proverbial for the ease and gracefulness of its flight, which generally consists of large and sweeping circles, performed with a motionless wing, or at least with a slight and almost imperceptible stroke of its pinions, and at very distant intervals. In this manner, and directing its course by aid of the tail, which acts as a rudder, and whose slightest motion produces effect, it frequently soars to such a height as to become almost invisible to the human eye. The prey of the kite consists of young game, leverets, rats, mice, lizards, &c. which it takes by pouncing upon the ground. It is a great depredator in farm-yards after chickens, young ducks, and goslings; and is in consequence bitterly retaliated upon as a common enemy in those districts where it abounds. It will also, under the pressure of hunger, devour offal and carrion, and has been known to prey upon dead fish.

It breeds early in the spring, in extensive woods, generally making its nest in the fork of a large tree. The nest is composed of sticks, lined with wool, hair, and other soft materials. The eggs are rather larger than those of a hen, and rarely exceed three in number. They are of a greyish-white, speckled with brownish-orange, principally at the larger end; but sometimes they are found quite plain.

strayed too far from the mother, instantly seizes the hour of calamity, and like a famished glutton, is sure to show no mercy. His hunger, indeed, often urges him to acts of seeming desperation, I have seen one of them fly round and round for a while to mark a clutch of chickens, and then on a sudden dart like lightning upon the unresisting little animal, and carry it off, the hen in vain crying out, and the boys hooting and casting stones to scare it from its plunder. For this reason, of all birds, the kite is the good housewife's greatest tormentor and aversion.

Of all obscene birds, the kite is the best known; but the buzzard among us is the most plenty.* He is a sluggish, inactive bird, and often remains perched whole days together upon the same bough. He is rather an assassin than a pursuer; and

* The Common Buzzard preys upon leverets, rabbits, game, and small birds, all of which it pounces on the ground. It also devours moles and mice, and, when pressed by hunger, will feed on reptiles and insects. It breeds in woods, and forms its nest of sticks, lined with wool, hay, and other materials, and will sometimes occupy the deserted nest of a crow.

The eggs are two or three in number, larger than those of a hen, and are white, either plain or spotted with reddish-brown. The young, according to Pennant, remain in company with the parent birds for some time after having quitted the nest,—a circumstance at variance with the usual habits of birds of prey. It is common in all the wooded parts of Europe, and according to Temminck, very abundant in Holland. In France this bird is killed during the winter for the sake of its flesh, which is esteemed delicious eating.

The *Rough-legged Buzzard* is a rare British species, and can only be considered as an occasional visitant. Montagu mentions two or three instances of its having been taken in the South of England.

It is a native of Norway, and other northern countries of Europe, where it frequents marshy districts, preying upon leverets, hamsters, water-rats, moles, and frequently lizzards and frogs. According to Temminck, it builds in lofty trees, and lays four white eggs, spotted with reddish-brown.

The *Honey Buzzard* preys upon moles, mice, and small birds, and on lizzards and insects, particularly, wasps, bees, and their larvæ, which should appear to be their favourite food.

Its flight is easy and graceful, and it is frequently seen near pieces of water, on account of the Libellulæ, and other aquatic insects. It breeds in lofty trees, forming a nest of twigs lined with wool, and other soft materials. The eggs are small, in proportion to the size of the bird, of a yellowish-white, marked with numerous spots and stains of reddish-brown, sometimes so confluent as to make them appear almost entirely brown. It is a native of eastern climes, and according to Temminck, is as rare in Holland as in England. In the south of France it is more abundant, but migratory.

lives more upon frogs, mice, and insects, which he can easily seize, than upon birds, which he is obliged to follow. He lives in summer by robbing the nests of other birds, and sucking their eggs, and more resembles the owl kind in his countenance than any other rapacious bird of day. His figure implies the stupidity of his disposition; and so little is he capable of instruction from man, that it is common to a proverb, to call one who cannot be taught, or continues obstinately ignorant, a *buzzard*. The honey-buzzard, the moor-buzzard, and the hen-harrier, are all of this stupid tribe, and differ chiefly in their size, growing less in the order I have named them. The goss-hawk and sparrow-hawk are what Mr Willoughby calls short-winged

Allied to the Buzzards are the Harriers. They are bolder and more active than the buzzards. They strike their prey upon the ground, and generally fly very low.

The *Marsh-Harriers* abound in all the marshy districts of England and Scotland, and, according to Montagu, are very numerous in Wales, where they prey upon the rabbits that inhabit the sand-banks of the shores of Caermarthenshire. In Holland they are of course numerous, from the nature of the country, and rare in Switzerland.

The *Hen Harrier*, though not very numerous, is pretty generally found throughout Britain, frequenting low marshy situations, or wide moors. The flight of the hen harrier is always low, but at the same time smooth and buoyant. It is very destructive to game, which it pounces upon the ground; it also feeds upon small birds and animals, lizards and frogs. It breeds on the open wastes, and frequently in thick furze covers; the nest is placed on the ground, and the eggs are four or five in number, of a skim-milk white, round at each end, and nearly as large as the marsh harrier. The young males for the first year, are similar in appearance to the females, after which they gradually assume the grey plumage that distinguishes the adult. It is common in France, Germany, and Holland, inhabiting the low and flat districts; but in Switzerland, and all mountainous countries, it is of rare occurrence.

The *Ash-coloured Harrier*.—The British Fauna is indebted to the researches of Montagu for the discovery of this new species of falcon. The resemblance it bears to the hen harrier was without doubt the cause of its remaining so long unnoticed as a separate species, having in all probability, when previously met with, been considered only as a variety of that bird.

The Ash-coloured harrier is far from being numerous in England. It skims along the surface of the ground, like the hen harrier, but with more rapid flight, and more strikingly buoyant. Lives upon small birds, lizards, frogs, &c. Its nest is placed upon the ground, amongst furze or low brush-wood. The eggs are generally four, and of a pure white. According to Temminck, it is found throughout Hungary, in Poland, Silesia, and Austria. It is common also in Dalmatia and the Illyrian provinces, but is of rare occurrence in Italy.

birds, and consequently unfit for training, however injurious they may be to the pigeon-house or the sportsman. They have been indeed taught to fly at game; but little is to be obtained from their efforts, being difficult of instruction, and capricious in their obedience. It has been lately asserted, however, by one whose authority is respectable, that the sparrow-hawk is the boldest and the best of all others for the pleasure of the chase.*

CHAP. VI.

THE BUTCHER BIRD.

BEFORE I conclude this short history of rapacious birds that prey by day, I must take leave to describe a tribe of smaller birds, that seem from their size rather to be classed with the harmless order of the sparrow kind; but that from their crook-

* The Secretary Falcon, an inhabitant of the south of Africa, is a singular bird, for whose natural history we are chiefly indebted to the indefatigable labours of M. le Vaillant. Its body, when standing erect, is not much unlike the crane; but its head, bill, and claws, are precisely those of the falcon. The general colour of the plumage is a bluish-ash; the tips of the wings, the thighs, and the vent, being blackish: the tail is black near the end, but the very tip is white: the legs are long, so that it measures, when standing erect, full three feet from the top of the head to the ground. On the back of the head are several long dark-coloured feathers, hanging down behind, and which it can erect at pleasure. This crest has induced the Dutch at the Cape to give it the name of the secretary, from the resemblance they fancy it has to the pen of a writer, when in the time of leisure it is stuck behind the ear.

The food to which this bird is particularly attached consists of snakes and other reptiles, for the destruction of which it is admirably fitted by its organization. In the craw of one, M. le Vaillant found eleven tolerably large lizards, three serpents as long as his arm, eleven small tortoises of about two inches in diameter, and a number of locusts and other insects, some of which were so entire that he added them to his collection. The mode in which it seizes serpents is very peculiar. When it approaches them, it is always careful to carry the one point of its wings forward, in order to parry off their venomous bites; sometimes it finds an opportunity of spurning and treading upon its antagonist, or else of taking him on its pinions and throwing him into the air. When by this proceeding it has at length wearied out its adversary, and rendered him almost senseless, it kills and swallows him at leisure, without danger.

ed beak, courage, and appetites for slaughter, certainly deserve a place here.* The lesser butcher-bird is not much above the size of a lark; that of the smallest species is not so big as a sparrow; yet, diminutive as these little animals are, they make themselves formidable to birds of four times their dimensions.

The greater butcher-bird is about as large as a thrush; its bill is black, an inch long and hooked at the end. This mark, together with its carnivorous appetites, ranks it among the rapacious birds; at the same time that its legs and feet, which are slender, and its toes, formed somewhat differently from the

* The tribe of birds here noticed under the name of butcher-birds are otherwise called *shrikes*. Shrikes are spread over the entire globe, and everywhere exhibit similar dispositions, habits, and modes of existence. Of small size, but armed with a strong and crooked beak, of a fierce and courageous disposition, and of a sanguinary appetite, they bear much affinity to the birds of prey. Naturally intrepid, they defend themselves vigorously, and do not hesitate to attack birds much stronger and larger than themselves. The European shrikes can combat with advantage, pies, crows, and even kestrels. They attack and pursue these birds with great ferocity, if they dare to approach their nests. It is even sufficient if any of them should pass within reach. The male and female shrikes unite, fly forth, attack them with loud cries, and pursue them with such fury, that they often take to flight without daring to return. Even kites, buzzards, and ravens will not willingly attack the shrike. They are habitually insectivorous, and also pursue small birds. They will cast themselves on thrushes, blackbirds, &c., when these last are taken in a snare. When they have seized a bird they open the cranium, devour the brain, deplume the body, and tear it piecemeal.

The prudence to foresee and provide for the wants of the future, is another of their qualities. That they may not fail of those insects which form their subsistence, and which only make their appearance at a determinate epoch, some shrikes form kinds of magazines, not in the hollows of trees, nor in the earth, but in the open air. They stick their superabundant prey on thorns, where they may find it again in the hour of need.

Falconers have taken the advantage of the character of these birds, and occasionally trained them to the chase. Francis the First of France, according to the account of Turner, was accustomed to hunt with a tame shrike, which used to speak, and return upon the hand. The Swedish hunters, availing themselves of the habit of the grey shrike of uttering a peculiar sort of cry at the approach of a hawk, make use of it to discover the birds of prey which this kind of cry announces.

Though we have said that the shrike genus is extended over the entire globe, we believe South America must be excepted. The South American birds which have been called shrikes belong to other divisions, and it would appear that this genus does not pass beyond the Floridas, Louisiana, and the north of Mexico.

former, would seem to make it the shade between such birds as live wholly upon flesh, and such as live chiefly upon insects and grain.

Indeed, its habits seem entirely to correspond with its conformation, as it is found to live as well upon flesh as upon insects, and thus to partake, in some measure, of a double nature. However, its appetite for flesh is the most prevalent; and it never takes up with the former when it can obtain the latter. This bird, therefore, leads a life of continual combat and opposition. As from its size it does not much terrify the smaller birds of the forest, so it very frequently meets birds willing to try its strength, and it never declines the engagement.*

It is wonderful to see with what intrepidity this little creature goes to war with a pie, the crow, and the kestrel, all above four times bigger than itself, and that sometimes prey upon flesh in the same manner. It not only fights upon the defensive, but often comes to the attack, and always with advantage, particularly when the male and female unite to protect their young, and to drive away the more powerful birds of rapine. At that season, they do not wait the approach of their invader; it is sufficient that they see him preparing for the assault at a distance. It is then that they sally forth with loud cries, wound him on every side, and drive him off with such fury, that he seldom ventures to return to the charge. In these kinds of disputes, they generally come off with the victory; though it sometimes happens that they fall to the ground with the bird they have so fiercely fixed upon, and the combat ends with the destruction of the assailant as well as the defender.

For this reason, the most redoubtable birds of prey respect them; while the kite, the buzzard, and the crow, seem rather to

* Bell in his travels from Moscow, through Siberia, to Pekin, says, that in Russia these birds are often taken by the bird-catchers, and made tame. He had one of them given to him, which he taught to perch on a sharpened stick fixed in the wall of his apartment. Whenever a small bird was let loose in the room, the butcher-bird would immediately fly from his perch, and seize it by the throat in such a manner as to suffocate it almost in a moment. He would then carry it to his perch, and spit it on the end, which was sharpened for the purpose, drawing it on carefully and forcibly with his bill and claws. If several birds were given him, he would use them all, one after another, in the same manner. These were so fixed, that they hung by the neck till he had leisure to devour them. This singular practice has given rise to the appellation of butcher-bird.

fear than seek the engagement. Nothing in nature better displays the respect paid to the claims of courage than to see this little bird, apparently so contemptible, fly in company with the lanner, the falcon, and all the tyrants of the air, without fearing their power, or avoiding their resentment.

As for small birds, they are its usual food. It seizes them by the throat and strangles them in an instant. When it has thus killed the bird or insect, it is asserted by the best authority, that it fixes them upon some neighbouring thorn, and, when thus spitted, pulls them to pieces with its bill. It is supposed, that as Nature has not given this bird strength sufficient to tear their prey to pieces with its feet, as the hawks do, it is obliged to have recourse to this extraordinary expedient.*

During summer, such of them as constantly reside here, for the smaller red butcher-bird migrates, remain among the mountainous parts of the country: but in winter they descend into the plains, and nearer human habitations. The larger kind make their nests on the highest trees, while the lesser build in bushes in the fields and hedge-rows. They both lay about six eggs, of a white colour, but encircled at the bigger end with a ring of brownish red. The nest on the outside is composed of white moss, interwoven with long grass; within it is well lined with wool, and is usually fixed among the forking branches of a tree. The female feeds her young with caterpillars and other insects while very young; but soon after accustoms them to flesh, which the male procures with surprising industry. Their nature also is very different from other birds of prey in their parental care; for, so far from driving out their young from the nest to shift for themselves, they keep them with care; and even when adult they do not forsake them, but the whole

* The red-backed shrike or lesser butcher-bird is about 7 inches long. Its bill is black; the head and lower part of the back, and coverts of the wings, are of a bright rusty red; the breast, belly, and sides, are of a fine pale rose or bloom-colour, the throat is white; a stroke of black passes from the bill through each eye; the two middle feathers of the tail are black, the others are white at the base; the quills are of a brown colour; and the legs are black.

The female, like all other birds of prey, is larger than the male; it builds its nest in hedges or low bushes, and lays six white eggs, marked with a reddish-brown circle towards the larger end.

This bird preys on young birds, which it takes in the nest; it likewise feeds on grasshoppers and beetles. It inhabits Great Britain, and various other temperate countries of Europe.

brood live in one family together. Each family lives apart, and is generally composed of the male, female, and five or six young ones; these all maintain peace and subordination among each other, and hunt in concert. Upon the returning season of courtship, this union is at an end, the family parts for ever, each to establish a little household of its own. It is easy to distinguish these birds at a distance, not only from their going in companies, but also from their manner of flying, which is always up and down, seldom direct or sideways.

Of these birds there are three or four different kinds; but the greater ash-coloured butcher-bird is the least known among us. The red-backed butcher-bird migrates in autumn, and does not return till spring. The wood-chat resembles the former, except in the colour of the back, which is brown, and not red as in the other. There is still another, less than either of the former, found in the marshes near London. This too is a bird of prey, although not much bigger than a titmouse; an evident proof that an animal's courage or rapacity does not depend upon its size. Of foreign birds of this kind there are several; but as we know little of their manner of living we will not, instead of history, substitute mere description. In fact, the colours of a bird, which is all we know of them, would afford a reader but small entertainment in the enumeration. Nothing can be more easy than to fill volumes with the different shades of a bird's plumage; but these accounts are written with more pleasure than they are read; and a single glance of a good plate or a picture imprints a juster idea than a volume could convey.*

CHAP. VII.

OF RAPACIOUS BIRDS OF THE OWL KIND, THAT PREY BY NIGHT.

HITHERTO we have been describing a tribe of animals who, though plunderers among their fellows of the air, yet wage war boldly in the face of day. We now come to a race equally

* The great butcher-bird of America is said to stick grasshoppers upon sharp thorns for the purpose, as is supposed, of tempting the smaller birds into a situation where it can easily dart out upon them and seize them.

cruel and rapacious ; but who add to their savage disposition, the further reproach of treachery, and carry on all their depredations by night.

All birds of the owl kind may be considered as nocturnal robbers, who, unfitted for taking their prey while it is light, surprise it at those hours of rest, when the tribes of nature are in the least expectation of an enemy. Thus there seems no link in Nature's chain broken : nowhere a dead inactive repose : but every place, every season, every hour of the day and night, is bustling with life, and furnishing instances of industry, self-defence, and invasion. *

* In a systematic arrangement, the owls, from their resemblance in form, and alliance in character to the Falcon genus, naturally follow them in the order of Rapacious Birds. The greater part of this genus (*Strix*) are nocturnal, or rather crepuscular birds of prey, sallying forth from their concealed retreats towards the close of day, when other birds are retiring to roost ; but when the animals, which form their principal food, are quitting their holes, to feed in expected security during the silence and darkness of the approaching night. Some of the species are, however, capable of bearing the light of day ; these pursue their prey in the same manner as the falcons, and in these also a nearer approach to that genus is observable, in the smaller size of the head, the dimensions of the eye, and the comparative length of the wings and tail.

The eye and ear of the owl are both admirably adapted to its mode of life , in the former, the pupil being capable of great dilatation, and formed, by its particular prominence, for collecting the horizontal and dim rays of twilight ; and being also furnished with a strong nictitating membrane, that serves, upon occasion, to defend it from the glare of day, at the same time that it allows the bird to see with sufficient distinctness for avoiding any sudden danger or surprise.

The external orifices of the ears are very large and complex, generally furnished with a valve, and situated immediately behind the eyes. In consequence of this formation and disposition, they are alive to the slightest noise, and not even the rustling of a mouse can escape their notice. The flight of the owl, when disturbed during the day, is abrupt and unsteady, but, at night, it skims along in search of its prey with great facility ; the delicate and downy texture of its plumage, producing the peculiar buoyancy which must have been generally remarked in the flight of these birds.

The genus is usually divided into two sections ; *horned* or *eared* owls, such as have a tuft of elongated feathers on each side of the forehead, and *smooth-headed* owls, or those destitute of the lengthened feathers. This second section has been subdivided by some authors into a third, called *accipitrine* ; but as the gradation from one to another is almost imperceptible, and the characters upon which they have attempted to establish this subdivision are far from being distinct, it is quite sufficient for the general purposes of science to adhere to the two-fold division.

The British Fauna enumerates four species in each section, of which two

All birds of the owl kind have one common mark by which they are distinguished from others ; their eyes are formed for seeing better in the dusk than in the broad glare of sun-shine. As in the eyes of tigers and cats, that are formed for a life of

in the eared owls, and three in the smooth headed, are indigenous ; the others are but occasional visitants.

HORNED OWLS.

SMOOTH-HEADED OWLS.

Great-horned or			
Eagle Owl,	<i>Strix Bubo.</i>	Snowy Owl,	<i>Strix Nyctea.</i>
Long-eared Owl,	<i>S. Otus.</i>	Barn Owl,	<i>S. Flammea.</i>
Short-eared Owl,	<i>S. Brachyotos.</i>	Tawny Owl,	<i>S. Stridula.</i>
Little-horned Owl,	<i>S. Scops.</i>	Little Owl,	<i>S. Passerina.</i>

Great-horned, or Eagle Owl.—This species, which is equal in size to some of the largest Eagles, is of very rare occurrence in Great Britain ; and, in the few instances on record, the birds can only be regarded as wanderers, or compelled by tempest to cross the Northern Ocean. It preys upon fauns, rabbits, the different species of grouse, rats, &c.—It builds amid rocks, or on lofty trees, and lays two or three eggs, larger than those of a hen, round at each end, and of a bluish-white colour.

According to TEMMINCK, it is common in Russia, Hungary, Germany, and Switzerland. It is also a native of Africa, and the northern parts of the New World.

Long-eared Owl.—The excellent mixture of colours in this bird, and the imposing appearance of its long tufts or ears, render it one of the most interesting of its genus. Though not so numerous as the Barn, or the Tawny Owl, it is found in most of the wooded districts of England and Scotland. Plantations of fir, particularly of the *spruce* kind, are its favourite haunts, as in these it finds a secure and sheltered retreat during the day. It also frequently inhabits thick holly or ivy bushes, whose evergreen foliage ensures a similar retirement. It is an indigenous species, and breeds early in spring ; not making any nest of its own, but taking possession of that of a magpie or crow. The eggs are generally four or five in number, white, and rather larger and rounder than those of the Ring-Dove. When first excluded, the young birds are covered with a fine and closely set white down ; they remain in the nest for more than a month before they are able to fly. If disturbed and handled, they hiss violently, strike with their talons, and, at the same time, make a snapping noise with their bills. When they quit the nest, they take up their abode in some adjoining tree, and, for many subsequent days, may be heard, after sunset, uttering a plaintive but loud call for food ; during which time the parent birds may be seen diligently employed in hawking for prey.

Mice and Moles form the principal part of their provender ; though MONTAGU says, that they sometimes take small birds on the roost.

It is pretty generally diffused throughout Europe ; and in North America is found to inhabit the woods at a distance from the sea. It has been observed as far northward as Hudson's Bay.

Short-eared Owl.—The birds of this species are only to be met with in

nocturnal depredation, there is a quality in the retina that takes in the rays of light so copiously as to permit their seeing in places almost quite dark ; so in these birds there is the same conformation of that organ, and though, like us, they cannot see in a

England, between the months of October and April, as they migrate on the approach of spring, to the northern islands of Scotland, where they breed. Mr Low, in his *Fauna Orcadensis*, mentions this owl as being very frequent in the hills of Hoy, where it builds its nest amongst the heath. It is there of great boldness, and has been seen to chase pigeons in the open day. In a nest, which contained two full-fledged young ones, he found the remains of a moor fowl, and two plovers, besides the feet of several others. In this country they generally remain concealed in long grass, or in rushy places, upon waste grounds, or moors. In autumn, they are often met with in turnip fields, but are seldom seen in plantations ; nor do they ever attempt to perch upon a tree. Five or six of these birds are frequently found roosting together ; from which circumstance it is probable that they migrate in families. MONTAGU thinks that this may arise from the abundance of food they meet with in the places where they are thus collected, but the truth of this supposition may be doubted, from the fact of their being seldom met with during two days together in the same place.

The head of this owl being smaller than the generality of its fellow species, has procured it, in some parts, the name of *Hawk Owl*, or *Mouse Hawk*. Many ornithologists have been in doubt respecting it, and the synonyms are consequently in some confusion and obscurity.

This owl is of wide locality, being met with in Siberia, and in many parts of North America ; and specimens are also mentioned as having been brought from the Sandwich Islands.

The Scops-eared Owl.—It is very common in the warmer parts of Europe during the summer months, but regularly leaves them on the approach of autumn, for regions near to the equator. In France, it arrives and departs with the swallow. Its favourite residence in Italy, according to SPALLANZANI, is in the lower wooded regions.—Field and shrew mice, insects, and earth-worms, are its food, in quest of which it sallies forth at night-fall, uttering at the same time its cry, which resembles the word *chiri*, and whence, in some districts, it has acquired the name of Chevini. It constructs no nest but deposits five or six eggs in the hollow of a tree.

Snowy Owl.—It is only within these few years past, that this noble and beautiful owl has been established as indigenous in Great Britain. In a tour made to the Orkney and Shetland Isles, in the year 1812, Mr Bullock, the late proprietor of the London Museum, met with it in both groups of islands ; and it is now ascertained that the species is resident, and breeds there.

It is common in the regions of the arctic circle even inhabiting the frozen coasts of Greenland. Is very numerous on the shores of Hudson's Bay, in Norway, Sweden, and Lapland ; but of very rare occurrence in the temperate parts of Europe and America.

Barn or White Owl.—This is the most common of the British species, and is found in every-part of the kingdom. It is an inhabitant of ruins, church-towers, barns and other buildings, where it is not liable to continual inter-

total exclusion of light, yet they are sufficiently quick sighted, at times when we remain in total obscurity. In the eyes of all animals, Nature hath made a complete provision, either to shut out too much light, or to admit a sufficiency, by the contraction

ruption; and is of essential service in checking the breed of the common and shrew mouse, upon which it subsists.—On the approach of twilight it may frequently be seen issuing from its retreat to the adjoining meadows and hedge-banks in search of food, hunting with great regularity, and precipitating itself upon its prey with rapidity and unerring aim. This it swallows whole, and without any attempt to tear it in pieces with its claws. It breeds in old towers, under the eaves of churches, or in similar quiet places, and sometimes in the hollows of trees, laying from three to five eggs, of a bluish-white colour. The young, when first from the shell, are covered with white down, and are a long time in becoming fully fledged, or in being able to quit the nest. Like the other species of owls, it ejects the hair, bones, and other indigestible parts of its food, in oval pellets, by the mouth. These castings are often found in great quantities in places where these birds have long resorted. In its flight it occasionally utters loud screams, and when perched, hisses and snores considerably. It is an abundant species throughout Europe and Asia, and TEMMINCK says it is the same throughout North America. It is easily domesticated, and will become very tame when taken young. MONTAGU reared a white owl, a sparrow-hawk, and a ring-dove together, who lived in great harmony for six months. They were then set at liberty; and the owl was the only one of the three that returned.

Next to the white or barn owl, the *Tawny Owl* is the most abundant of the British species, and is, like the former, generally dispersed throughout the kingdom; but is most readily to be met with in well-wooded districts, as it takes up its abode in woods and thick plantations, preferring those which abound in firs and holly, or ivy bushes. In such situations it remains concealed till night-fall, as it is very impatient of the glare of day, and sees, indeed, imperfectly during that time. It builds in the cavities of old trees, or will occupy the deserted nest of a crow, and produces four or five white eggs, of an elliptical shape.

The young, on their exclusion, are covered with a greyish down, and are easily tamed, when fed by the hand; but MONTAGU observes, that if placed out of doors within hearing of their parents, they retain their native shyness, as the old birds visit them at night, and supply them with abundance of food. They prey upon rats, mice, moles, rabbits, and young leverets, and are sometimes destructive to pigeons, entering the dovecots, and committing great havoc. At night this species is very clamorous, and is easily to be known from the others by its hooting, in the utterance of which sounds its throat is largely inflated.

Little Owl.—This diminutive species is only an occasional visitant in England, and that but very rarely. According to TEMMINCK, it is never found in Europe beyond the 55th degree of north latitude; but in the warmer regions of this quarter of the globe it is very common.—It inhabits ruins, church-towers, and similar old buildings, and in such it also breeds. The eggs are four or five in number, of a round shape, and white, like those of most of the other species. It is of a wild and fierce disposition, and not

and dilatation of the pupil. In these birds the pupil is capable of opening very wide, or shutting very close : by contracting the pupil, the brighter light of the day, which would act too powerfully upon the sensibility of the retina, is excluded ; by dilating the pupil, the animal takes in the more faint rays of the night, and thereby is enabled to spy its prey, and catch it with greater facility in the dark. Besides this, there is an irradiation on the back of the eye, and the very iris itself has a faculty of reflecting the rays of light, so as to assist vision in the gloomy places where these birds are found to frequent.

But though owls are dazzled by too bright a day-light, yet they do not see best in the darkest nights, as some have been apt to imagine. It is in the dusk of the evening, or the gray of the morning, that they are best fitted for seeing, at those seasons when there is neither too much light, nor too little. It is then that they issue from their retreats, to hunt or to surprise their prey, which is usually attended with great success : it is then that they find all other birds asleep, or preparing for repose, and they have only to seize the most unguarded.

The nights when the moon shines are the times of their most successful plunder ; for when it is wholly dark, they are less qualified for seeing and pursuing their prey : except, therefore, by moonlight, they contract the hours of their chase ; and if they come out at the approach of dusk in the evening, they return before it is totally dark, and then rise by twilight the next morning to pursue their game, and to return in like manner, before the broad day-light begins to dazzle them with its splendour.

Yet the faculty of seeing in the night, or of being entirely dazzled by the day, is not alike in every species of these nocturnal birds : some see by night better than others ; and some are so little dazzled by day-light, that they perceive their enemies, and avoid them. The common White or Barn Owl, for instance, sees with such exquisite acuteness in the dark, that though the barn has been shut at night, and the light thus totally excluded, yet it perceives the smallest mouse that peeps from its hole : on the contrary, the Brown Horned Owl is often seen to

capable of being tamed like the little horned or scops eared owl. It sometimes preys by day, and, from having been seen to pursue swallows, must be strong and rapid on the wing. Its prey consists of mice, small birds, and insects.—See Selby's Ornithology.

prowl along the hedges by day, like the sparrow-hawk ; and sometimes with good success.

All birds of the owl kind may be divided into two sorts ; those that have horns, and those without. These horns are nothing more than two or three feathers that stand upon each side of the head over the ear, and give this animal a kind of horned appearance. Of the horned kind is, the Great Horned Owl, which at first view appears as large as an eagle. When he comes to be observed more closely, however, he will be found much less. His legs, body, wings, and tail, are shorter ; his head much larger and thicker : his horns are composed of feathers that rise above two inches and a half high, and which he can erect or depress at pleasure : his eyes are large and transparent, encircled with an orange-coloured iris : his ears are large and deep, and it would appear that no animal was possessed with a more exquisite sense of hearing : his plumage is of a reddish brown, marked on the back with black and yellow spots, and yellow only upon the belly.

Next to this is the Common Horned Owl, of a much smaller size than the former, and with horns much shorter. As the great owl was five feet from the tip of one wing to the other, this is but three. The horns are but about an inch long, and consist of six feathers, variegated with black and yellow.

There is still a smaller kind of the horned owl, which is not much larger than a blackbird ; and whose horns are remarkably short, being composed but of one feather, and that not above half an inch high.

To these succeeds the tribe without horns. The HOWLET, which is the largest of this kind, with dusky plumes and black eyes ; the SCREECH OWL, of a smaller size, with blue eyes, and plumage of an iron gray ; the WHITE OWL, about as large as the former, with yellow eyes and whitish plumage ; the GREAT BROWN OWL, less than the former, with brown plumage and a brown beak ; and lastly, the LITTLE BROWN OWL, with yellowish coloured eyes, and an orange-coloured bill. To this catalogue might be added others of foreign denominations, which differ but little from our own, if we except the HARFANG, or GREAT HUDSON'S BAY OWL of Edwards, which is the largest of all the nocturnal tribe, and as white as the snows of the country of which he is a native.

All this tribe of animals, however they may differ in their

size and plumage, agree in their general characteristics of preying by night, and having their eyes formed for nocturnal vision. Their bodies are strong and muscular; their feet and claws made for tearing their prey; and their stomachs for digesting it. It must be remarked, however, that the digestion of all birds that live upon mice, lizards, or such like food, is not very perfect; for though they swallow them whole, yet they are always seen some time after to disgorge the skin and bones, rolled up in a pellet, as being indigestible.

In proportion as each of these animals bears the daylight best, he sets forward earlier in the evening in pursuit of his prey. The great horned owl is the foremost in leaving his retreat; and ventures into the woods and thickets very soon in the evening. The horned, and the brown owl, are later in their excursions: but the barn-owl seems to see best in profound darkness, and seldom leaves his hiding-place till midnight.

As they are incapable of supporting the light of the day, or at least of then seeing and readily avoiding their danger, they keep all this time concealed in some obscure retreat, suited to their gloomy appetites, and there continue in solitude and silence. The cavern of a rock, the darkest part of a hollow tree, the battlements of a ruined and unfrequented castle, some obscure hole in a farmer's out-house, are the places where they are usually found: if they be seen out of these retreats in the daytime, they may be considered as having lost their way; as having by some accident been thrown into the midst of their enemies, and surrounded with danger.

Having spent the day in their retreat, at the approach of evening they sally forth, and skim rapidly up and down along the hedges. The barn-owl, indeed, who lives chiefly upon mice, is contented to be more stationary: he takes his residence upon some shock of corn, or the point of some old house; and there watches in the dark, with the utmost perspicacity and perseverance.

Nor are these birds by any means silent; they all have a hideous note; which, while pursuing their prey, is seldom heard; but may be considered rather as a call to courtship. There is something always terrifying in this call, which is often heard in the silence of midnight, and breaks the general pause with a horrid variation. It is different in all; but in each it is

alarming and disagreeable. Father Kircher, who has set the voices of birds to music, has given all the tones of the owl note, which make a most tremendous melody. Indeed, the prejudices of mankind are united with their sensations to make the cry of the owl disagreeable. The screech-owl's voice was always considered among the people as a presage of some sad calamity that was soon to ensue.

They seldom, however, are heard while they are preying; that important pursuit is always attended with silence, as it is by no means their intention to disturb or forewarn those little animals they wish to surprise. When their pursuit has been successful, they soon return to their solitude, or to their young, if that be the season. If, however, they find but little game, they continue their quest still longer; and it sometimes happens that, obeying the dictates of appetite rather than of prudence, they pursue so long that broad day breaks in upon them, and leaves them dazzled, bewildered, and at a distance from home.

In this distress they are obliged to take shelter in the first tree or hedge that offers, there to continue concealed all day, till the returning darkness once more supplies them with a better plan of the country. But it too often happens that, with all their precaution to conceal themselves, they are spied out by the other birds of the place, and are sure to receive no mercy. The blackbird, the thrush, the jay, the bunting, and the red-breast, all come in file, and employ their little arts of insult and abuse. The smallest, the feeblest, and the most contemptible of this unfortunate bird's enemies, are then the foremost to injure and torment him. They increase their cries and turbulence round him, flap him with their wings, and are ready to show their courage to be great, as they are sensible that their danger is but small. The unfortunate owl, not knowing where to attack or where to fly, patiently sits and suffers all their insults. Astonished and dizzy, he only replies to their mockeries by awkward and ridiculous gesture, by turning his head and rolling his eyes with an air of stupidity. It is enough that an owl appears by day, to set the whole grove into a kind of uproar. Either the aversion all the small birds have to this animal, or the consciousness of their own security, makes them pursue him without ceasing, while they encourage each other by their mutual cries to lend assistance in this laudable undertaking.

It sometimes happens, however, that the little birds pursue their insults with the same imprudent zeal with which the owl himself had pursued his depredations. They hunt him the whole day until evening returns; which restoring him his faculties of sight once more, he makes the foremost of his pursuers pay dear for their former sport. Nor is man always an unconcerned spectator here. The birdcatchers have got an art of counterfeiting the cry of the owl exactly; and having before limed the branches of a hedge, they sit unseen, and give the call. At this, all the little birds flock to the place where they expect to find their well-known enemy; but instead of finding their stupid antagonist they are stuck fast to the hedge themselves. This sport must be put in practice an hour before night-fall, in order to be successful; for if it is put off till later, those birds which but a few minutes sooner came to provoke their enemy, will then fly from him with as much terror as they just before showed insolence.

It is not unpleasant to see one stupid bird made, in some sort, a decoy to deceive another. The great horned owl is sometimes made use of for this purpose to lure the kite, when falconers desire to catch him for the purposes of training the falcon. Upon this occasion they clap the tail of a fox to the great owl, to render his figure extraordinary; in which trim he sails slowly along, flying low, which is his usual manner. The kite, either curious to observe this odd kind of animal, or perhaps inquisitive to see whether it may not be proper for food, flies after, and comes nearer and nearer. In this manner he continues to hover, and sometimes to descend, till the falconer setting a strong-winged hawk against him, seizes him for the purpose of training his young ones at home.

The usual place where the great horned owl breeds is in the cavern of a rock, the hollow of a tree, or the turret of some ruined castle. Its nest is near three feet in diameter, and composed of sticks, bound together by the fibrous roots of trees, and lined with leaves on the inside. It lays about three eggs, which are larger than those of a hen, and of a colour somewhat resembling the bird itself. The young ones are very voracious, and the parents not less expert at satisfying the call of hunger. The lesser owl of this kind never makes a nest for itself, but always takes up with the old nest of some other bird, which it has often

been forced to abandon. It lays four or five eggs; and the young are all white at first, but change colour in about a fortnight. The other owls in general build near the place where they chiefly prey; that which feeds upon birds, in some neighbouring grove; that which preys chiefly upon mice, near some farmer's yard, where the proprietor of the place takes care to give it perfect security. In fact, whatever mischief one species of owl may do in the woods, the barn owl makes a sufficient recompense for, by being equally active in destroying mice nearer home; so that a single owl is said to be more serviceable than half a dozen cats, in ridding the barn of its domestic vermin. "In the year 1580," says an old writer, "at Hallontide, an army of mice so over-run the marshes near Southminster, that they eat up the grass to the very roots. But at length a great number of strange painted owls came and devoured all the mice." The like happened again in Essex about sixty years after.

To conclude our account of these birds, they are all very shy of man, and extremely indocile and difficult to be tamed. The white owl in particular, as Mr Buffon asserts, cannot be made to live in captivity; I suppose he means, if it be taken when old. "They live," says he, "ten or twelve days in the aviary where they are shut up; but they refuse all kind of nourishment, and at last die of hunger. By day they remain without moving upon the floor of the aviary; in the evening they mount on the highest perch, where they continue to make a noise like a man snoring with his mouth open. This seems designed as a call for their old companions without; and, in fact, I have seen several others come to the call, and perch upon the roof of the aviary, where they made the same kind of hissing, and soon after permitted themselves to be taken in a net."*

* Mr Constedt, in the Transactions of the Philosophical Society of Stockholm, has recorded a pleasing instance of their attachment to their young. A young owl having quitted the nest, in the month of July, was caught by his servants, and shut up in a large hen-coop. The next morning a young partridge was found lying dead before the door of the coop. For fourteen successive nights the same circumstance was repeated; plainly proving that it had been brought there by the old owls as a provision for the young one. Till the month of August, various articles of food, as young partridges, moor-fowl, pieces of lamb, and other substances, were regularly brought; after which time the parents discontinued their attendance, and it may be remarked that this is the period when all birds of prey abandon their young to their own exertions.

BOOK III.

OF BIRDS OF THE POULTRY KIND

CHAP. I.

OF BIRDS OF THE POULTRY KIND IN GENERAL.

FROM the most rapacious and noxious tribe of birds, we make a transition to those which of all others are most harmless, and the most serviceable to man. He may force the rapacious tribes to assist his pleasures in the field, or induce the smaller warblers to delight him with their singing; but it is from the poultry kind that he derives the most solid advantages, as they not only make a considerable addition to the necessities of life, but furnish out the greatest delicacies to every entertainment.

Almost, if not all, the domestic birds of the poultry kind that we maintain in our yards, are of foreign extraction; but there are others to be ranked in this class that are as yet in a state of nature; and perhaps only wait till they become sufficiently scarce to be taken under the care of man, to multiply their propagation. It will appear remarkable enough, if we consider how much the tame poultry which we have imported from distant climates has increased, and how much those wild birds of the poultry kind that have never yet been taken into keeping have been diminished and destroyed. They are all thinned; and many of the species, especially in the more cultivated and populous parts of the kingdom, are utterly unseen.

Under birds of the poultry kind I rank all those that have white flesh, and, comparatively to their head and limbs, have bulky bodies. They are furnished with short strong bills for

picking up grain, which is their chief and often their only sustenance. Their wings are short and concave ; for which reason they are not able to fly far. They lay a great many eggs ; and, as they lead their young abroad the very day they are hatched, in quest of food, which they are shown by the mother, and which they pick up for themselves, they generally make their nests on the ground. The toes of all these are united by a membrane as far as the first articulation, and then are divided as in those of the former class.

Under this class we may therefore rank the common cock, the peacock, the turkey, the pintada or Guinea-hen, the pheasant, the bustard, the grouse, the partridge, and the quail. These all bear a strong similitude to each other, being equally granivorous, fleshy, and delicate to the palate. These are among birds what beasts of pasture are among quadrupeds, peaceable tenants of the field, and shunning the thicker parts of the forest, that abound with numerous animals, who carry on unceasing hostilities against them.

As Nature has formed the rapacious class for war, so she seems equally to have fitted these for peace, rest, and society. Their wings are but short, so that they are ill formed for wandering from one region to another ; their bills are also short, and incapable of annoying their opposers ; their legs are strong, indeed, but their toes are made for scratching up their food, and not for holding or tearing it. These are sufficient indications of their harmless nature ; while their bodies, which are fat and fleshy, render them unwieldy travellers, and incapable of straying far from each other.

Accordingly we find them chiefly in society ; they live together ; and though they may have their disputes, like all other animals, upon some occasions, yet when kept in the same district, or fed in the same yard, they learn the arts of subordination ; and, in proportion as each knows his strength, he seldom tries a second time the combat where he has once been worsted.

In this manner, all of this kind seem to lead an indolent voluptuous life ; as they are furnished internally with a very strong stomach, commonly called a gizzard, so their voraciousness scarcely knows any bounds. If kept in close captivity, and separated from all their former companions, they still have the pleasure of eating left ; and they soon grow fat and unwieldy in

their prison. To say this more simply, many of the wilder species of birds, when cooped or caged, pine away, grow gloomy, and some refuse all sustenance whatever; none, except those of the poultry kind, grow fat, who seem to lose all remembrance of their former liberty, satisfied with indolence and plenty.

The poultry kind may be considered as sensual epicures, solely governed by their appetites. The indulgence of these seems to influence their other habits, and destroys among them that connubial fidelity for which most other kinds are remarkable. The eagle and the falcon, how fierce soever to other animals, are yet gentle and true to each other; their connections, when once formed, continue till death; and the male and female, in every exigence, and every duty, lend faithful assistance to each other. They assist each other in the production of their young, in providing for them when produced; and even then, though they drive them forth to fight their own battles, yet the old ones still retain their former affection to each other, and seldom part far asunder.

But it is very different with this luxurious class I am now describing. Their courtship is but short and their congress fortuitous. The male takes no heed of his offspring, and satisfied with the pleasure of getting, leaves to the female all the care of providing for posterity. Wild and irregular in his appetites, he ranges from one to another; and claims every female which he is strong enough to keep from his fellows. Though timorous when opposed to birds of prey, yet he is incredibly bold among those of his own kind; and but to see a male of his own species is sufficient to produce a combat. As his desires extend to all, every creature becomes his enemy that pretends to be his rival.

The female, equally without fidelity or attachment, yields to the most powerful. She stands by a quiet meretricious spectator of their fury, ready to reward the conqueror with every compliance. She takes upon herself all the labour of hatching and bringing up her young, and chooses a place for hatching as remote as possible from the cock. Indeed she gives herself very little trouble in making her nest, as her young ones are to leave it the instant they part from the shell.

She is equally unassisted in providing for her young, that are not fed with meat put into their mouths, as in other classes

of the feathered kind, but peck their food, and forsaking their nests, run here and there, following the parent wherever it is to be found. She leads them forward where they are likely to have the greatest quantity of grain, and takes care to show by pecking, the sort proper for them to seek for. Though at other times voracious, she is then abstemious to an extreme degree ; and intent only on providing for, and showing her young clutch their food, she scarcely takes any nourishment herself. Her parental pride seems to overpower ever other appetite : but that decreases in proportion as her young ones are more able to provide for themselves, and then all her voracious habits return.

Among the other habits peculiar to this class of birds is that of dusting themselves. They lie flat in some dusty place, and with their wings and feet raise and scatter the dust over their whole body. What may be their reason for thus doing, it is not easy to explain. Perhaps the heat of their bodies is such, that they require this powder to be interposed between their feathers, to keep them from lying too close together, and thus increasing that heat with which they are incommoded.

CHAP. II.

OF THE COCK.

ALL birds taken under the protection of man lose a part of their natural figure, and are altered, not only in their habits, but their very form. Climate, food, and captivity, are three very powerful agents in producing these alterations ; and those birds that have longest felt their influence under human direction are the most likely to have the greatest variety in their figures, their plumage, and their dispositions.

Of all other birds, the cock seems to be the oldest companion of mankind, to have been first reclaimed from the forest, and taken to supply the accidental failure of the luxuries or necessities of life. As he is thus longest under the care of man, so of all others perhaps he exhibits the greatest number of varieties, there being scarce two birds of this species that exactly resemble each other in plumage and form. The tail which makes such a

beautiful figure in the generality of these birds, is yet found entirely wanting in others ; and not only the tail, but the rump also. The toes, which are usually four in all animals of the poultry kind, yet in a species of the cock are found to amount to five. The feathers, which lie so sleek and in such beautiful order, in most of those we are acquainted with, are, in a peculiar breed, all inverted, and stand staring the wrong way. Nay, there is a species that comes from Japan, which instead of feathers seems to be covered all over with hair. These, and many other varieties, are to be found in this animal, which seem to be the marks this early prisoner bears of his long captivity.

It is not well ascertained when the cock was first made domestic in Europe, but it is generally agreed that we first had him in our western world from the kingdom of Persia. Aristophanes calls the cock the *Persian bird*, and tells us, he enjoyed that kingdom before some of its earliest monarchs. This animal was in fact known so early, even in the most savage parts of Europe, that we are told the cock was one of the forbidden foods among the ancient Britons. Indeed, the domestic fowl seems to have banished the wild one. Persia itself, that first introduced it to our acquaintance, seems no longer to know it in its natural form ; and if we did not find it wild in some of the woods of India, as well as those of the islands in the Indian ocean, we might begin to doubt, as we do with regard to the sheep, in what form it first existed in a state of nature.

But those doubts no longer exist ; the cock is found in the island of Tinian, in many others of the Indian ocean, and in the woods on the coast of Malabar, in his ancient state of independence. In his wild condition, his plumage is black and yellow, and his comb and wattles yellow and purple. There is another peculiarity also in those of the Indian woods ; their bones which when boiled with us are white, as every body knows, in those are as black as ebony. Whether this tincture proceeds from their food, as the bones are tintured red by feeding upon madder, I leave to the discussion of others : satisfied with the fact let us decline speculation.

In their first propagation in Europe, there were distinctions then that now subsist no longer. The ancients esteemed those fowls whose plumage was reddish as invaluable ; but as for

the white, it was considered as utterly unfit for domestic purposes. These they regarded as subject to become a prey to rapacious birds ; and Aristotle thinks them less fruitful than the former. Indeed his division of those birds seems to be taken from their culinary uses ; the one sort he calls generous and noble, being remarkable for fecundity : the other sort, ignoble and useless, from their sterility. These distinctions differ widely from our modern notions of generosity in this animal ; that which we call the *game-cock* being by no means so fruitful as the ungenerous dung-hill cock, which we treat with contempt. The Athenians had their cock matches as well as we ; but it is probable that they did not enter into that refinement of choosing out the most barren of the species for the purposes of combat.

However this be, no animal in the world has greater courage than the cock, when opposed to one of his own species ; and in every part of the world, where refinement and polished manners have not entirely taken place, cock-fighting is a principal diversion. In China, India, the Philippine islands, and all over the East, cock-fighting is the sport and amusement even of kings and princes. With us it is declining every day, and it is to be hoped that it will in time become only the pastime of the lowest vulgar. It is the opinion of many, that we have a bolder and more valiant breed than is to be found elsewhere ; and some, indeed, have entered into a serious discussion upon the cause of so flattering a singularity. But the truth is, they have cocks in China as bold, if not bolder than ours ; and what would still be considered as valuable among cockers here, they have more strength with less weight. Indeed, I have often wondered why men who lay two or three hundred pounds upon the prowess of a single cock, have not taken every method to improve the breed. Nothing, it is probable, could do this more effectually than by crossing the *strain*, as it is called, by a foreign mixture ; and whether having recourse even to the wild cock in the forests of India would not be useful, I leave to their consideration. However, it is a mean and ungenerous amusement, nor would I wish much to promote it. The truth is, I could give such instructions with regard to cock-fighting, and could so arm one of these animals against the other that it would be almost impossible for the adversary's cock to survive the first or second

blow ; but as Boerhaave has said upon a former occasion, when he was treating upon poisons, "to teach the arts of cruelty is equivalent to committing them."

This extraordinary courage in the cock is thought to proceed from his being the most salacious of all other birds whatsoever. A single cock suffices for ten or a dozen hens ; and it is said of him, that he is the only animal whose spirits are not abated by indulgence. But then he soon grows old ; the radical moisture is exhausted ; and in three or four years he becomes utterly unfit for the purposes of impregnation. "Hens also," to use the words of Willoughby, "as they for the greatest part of the year daily lay eggs, cannot suffice for so many births, but for the most part, after three years, become effete and barren : for when they have exhausted all their seed-eggs, of which they had but a certain quantity from the beginning, they must necessarily cease to lay, there being no new ones generated within."

The hen seldom clutches a brood of chickens above once a season, though instances have been known in which they produced two. The number of eggs a domestic hen will lay in the year are above two hundred, provided she be well fed, and supplied with water and liberty. It matters not much whether she be trodden by the cock or no ; she will continue to lay, although all the eggs of this kind can never, by hatching, be brought to produce a living animal. Her nest is made without any care, if left to herself ; a hole scratched into the ground, among a few bushes, is the only preparation she makes for this season of patient expectation. Nature, almost exhausted by its own fecundity, seems to inform her of the proper time for hatching, which she herself testifies by a clucking note, and by discontinuing to lay. The good housewives, who often get more by their hens laying than by their chickens, artificially protract this clucking season, and sometimes entirely remove it. As soon as their hen begins to cluck, they stint her in her provisions ; and if that fails, they plunge her into cold water : this, for the time, effectually puts back her hatching ; but then it often kills the poor bird, who takes cold, and dies under the operation.

If left entirely to herself, the hen would seldom lay above twenty eggs in the same nest, without attempting to hatch them : but in proportion as she lays, her eggs are removed ; and she

continues to lay, vainly hoping to increase the number. In the wild state the hen seldom lays above fifteen eggs ; but then her provision is more difficultly obtained, and she is perhaps sensible of the difficulty of maintaining too numerous a family.

When the hen begins to sit, nothing can exceed her perseverance and patience ; she continues for some days immoveable ; and when forced away by the importunities of hunger, she quickly returns. Sometimes, also, her eggs become too hot for her to bear, especially if she be furnished with too warm a nest within doors, for then she is obliged to leave them to cool a little : thus the warmth of the nest only retards incubation, and often puts the brood a day or two back in the shell. While the hen sits she carefully turns her eggs, and even removes them to different situations ; till at length, in about three weeks, the young brood begin to give signs of a desire to burst their confinement. When, by the repeated efforts of their bill, which serves like a pioneer on this occasion, they have broke themselves a passage through the shell, the hen still continues to sit till all are excluded. The strongest and best chickens generally are the first candidates for liberty ; the weakest come behind, and some even die in the shell. When all are produced, she then leads them forth to provide for themselves. Her affection and her pride seem then to alter her very nature, and correct her imperfections. No longer voracious or cowardly, she abstains from all food that her young can swallow, and flies boldly at every creature that she thinks is likely to do them mischief. Whatever the invading animal be, she boldly attacks him ; the horse, the hog, or the mastiff. When marching at the head of her little troop, she acts the commander, and has a variety of notes to call her numerous train to their food, or to warn them of approaching danger. Upon one of these occasions I have seen the whole brood run for security into the thickest part of a hedge, when the hen herself ventured boldly forth, and faced a fox that came for plunder. With a good mastiff, however, we soon sent the invader back to his retreat ; but not before he had wounded the hen in several places.

Ten or twelve chickens are the greatest number that a good hen can rear and clutch at a time ; but as this bears no proportion to the number of her eggs, schemes have been imagined to clutch all the eggs of a hen, and thus turn her produce to the

greatest advantage. By these contrivances it has been obtained that a hen, that ordinarily produces but twelve chickens in the year, is found to produce as many chickens as eggs, and consequently often above two hundred. The contrivance I mean is the artificial method of hatching chickens in stoves, as is practised at Grand Cairo ; or in a chymical elaboratory properly graduated, as has been effected by Mr Reaumur. At Grand Cairo they thus produce six or seven thousand chickens at a time ; where, as they are brought forth in their mild spring, which is warmer than our summer, the young ones thrive without clutching. But it is otherwise in our colder and unequal climate ; the little animal may, without much difficulty, be hatched from the shell ; but they almost all perish when excluded. To remedy this, Reaumur has made use of a woollen hen, as he calls it ; which was nothing more than putting the young ones in a warm basket, and clapping over them a thick-woollen canopy. I should think a much better substitute might be found ; and this from among the species themselves. Capons may very easily be taught to clutch a fresh brood of chickens throughout the year ; so that when one little colony is thus reared, another may be brought to succeed it. Nothing is more common than to see capons thus employed ; and the manner of teaching them is this : first the capon is made very tame, so as to feed from one's hand ; then, about evening, they pluck the feathers off his breast, and rub the bare skin with nettles ; they then put the chickens to him, which presently run under his breast and belly, and probably rubbing his bare skin gently with their heads allay the stinging pain which the nettles had just produced. This is repeated for two or three nights, till the animal takes an affection to the chickens that have thus given him relief, and continues to give them the protection they seek for : perhaps also the querulous voice of the chickens may be pleasant to him in misery, and invite him to succour the distressed. He from that time brings up a brood of chickens like a hen, clutching them, feeding them, clucking, and performing all the functions of the tenderest parent. A capon once accustomed to this service, will not give over ; but when one brood is grown up he may have another nearly hatched put under him, which he will treat with the same tenderness he did the former.

The cock, from his salaciousness, is allowed to be a short-

lived animal ; but how long these birds live, if left to themselves, is not yet well ascertained by any historian. As they are kept only for profit, and in a few years become unfit for generation, there are few that, from mere motives of curiosity, will make this tedious experiment of maintaining a proper number till they die. Aldrovandus hints their age to be ten years ; and it is probable that this may be its extent. They are subject to some disorders, which it is not our business to describe ; and as for poisons, besides *nux vomica*, which is fatal to most animals except man, they are injured, as Linnæus asserts, by elder-berries, of which they are not a little fond.*

* We shall here notice, from the English Supplement to Cuvier, a few of the varieties, or sub-races, of the domestic cock.

The *Crested Cock* (*Gallus Cristatus*) differs from the domestic, by having an ample tuft of feathers, instead of a fleshy comb, upon the head ; but it retains the wattles. Some, indeed, have these replaced by bunches of feathers ; and in one—said to be of a cross-breed with the cocks of Hamburgh, or perhaps this race itself, for it does not differ from *Cristatus* except in having the eyes surrounded with a circle of feathers—similar plumes, falling back horizontally, cover the ears, the occiput, and sometimes the throat.

The race of crested cocks is particularly in estimation with the curious. It is cultivated with great care ; and those who are desirous of propagating any singular varieties of it, isolate certain individuals, and do not suffer them to mingle with others, in which the colours are differently distributed. Such varieties are more esteemed in proportion as the colours are more rare, or as the tuft contrasts with the rest of the plumage. Though the differences of plumage are thus preserved pretty constant, it is certain that they owe their origin to the same race, and cannot be reproduced in all their purity without the surveillance of man. Sonnini tells us that these cocks are much esteemed in Egypt, in consequence of the goodness of their flesh. In Upper Egypt they are so common that they are sold at the rate of two-pence or three-pence a-piece. They are equally abundant at the Cape of Good Hope.

The *Turkish* and *Bantam Cocks* do not differ very materially from our domestic race ; and have also much analogy with the Javan species. They resemble each other in size ; their tail is not nearly so vertical as in our domestic breed, and they are smaller than our cock. The Bantam cocks differ from the Turkish in the feathers, more or less long, with which the tarsus, and frequently even the toes, are covered. These feathers do not constitute any specific difference ; they appear to be simply the effect of superabundant nourishment, with the inseparable consequence of domestication. The same effect, produced by the same causes, is found in many races of the domestic pigeon which have also the tarsi and feet furnished with feathers, of greater or less length. The races of the Turkish and Bantam cocks are distinguished by a very brilliant plumage, which in the cocks is most generally of a golden lustre.

The *Dwarf Cock*, though much inferior in size to the other race, is very

CHAP. III.

OF THE PEACOCK.

THE Peacock, by the common people of Italy, is said to have the plumage of an angel, the voice of the devil, and the guts of a thief. In fact, each of these qualities mark pretty well the nature of this extraordinary bird. When it appears with its tail expanded, there is none of the feathered creation can vie with it for beauty ; yet the horrid scream of its voice serves to abate the pleasure we find from viewing it ; and still more its insatiable gluttony, and spirit of depredation, make it one of the most noxious domestics that man has taken under his protection.

Our first peacocks were brought from the East Indies ; and we are assured, that they are still found in vast flocks, in a wild state, in the islands of Java and Ceylon. So beautiful a bird, and one esteemed such a delicacy at the tables of the luxurious,

similar to the common cocks and hens. The legs are in general very short ; and the general size varies in different individuals ; some are as large as the crow, others do not exceed the pigeon in bulk. The majority have the toes feathered ; some sub-races have the comb double, others single ; some carry the wings so low, that they trail along the ground. The colours of the plumage vary.

There is a multitude more of the races of our domestic cock, whose variations from that species, and from the varieties now described, do not appear of sufficient importance to demand a distinct enumeration. Of those species which may be considered distinct in the genus, are the *Jago Cock* (*Gallus Giganteus*). This bird lives in a wild state, in the forests of the southern part of the Island of Sumatra ; it is also found in the western portions of the Island of Java. Dampier and Marsden have noticed it. The last, who speaks of it very succinctly, says, that he saw a cock of this species, which, standing on the floor of an apartment, reached easily to the dinner-table with his bill ; when this bird was fatigued, he rested himself on the first articulation of the leg, and, even then, was taller than our domestic cock. From this cock, and from the *Bankiva*, another primitive cock, found in the island of Java, M. Temminck considers our common cock to have originated.

The Paduan cocks, and the hens of Sansevarre, (*Gallus Patavinus*), seem to approach the nearest to this Jago species, and may be considered as varieties or descendants of it. This race is almost double the size of our domestic cocks and hens ; their voice is strong and hoarse ; and the weight is eight or ten pounds. To this race may also be referred the great cocks of Rhodes, of Persia, and of Pegu ; and the large hens of Bahia, mentioned by Dampier. Among other species of the cock are—the wild cock of Sonnerat—the negro cock, so called from its black crest—the silk cock—the crisped cock, &c.—all inhabitants of Asia.

could not be permitted to continue long at liberty in its distant retreats. So early as the days of Solomon, we find in his navies, among the articles imported from the east, apes and peacocks. Ælian relates, that they were brought into Greece from some barbarous country, and were held in such high esteem among them, that a male and female were valued at above thirty pounds of our money. We are told also, that when Alexander was in India, he found them flying wild in vast numbers, on the banks of the river Hyarotis, and was so struck with their beauty, that he laid a severe fine and punishment on all who should kill or disturb them. Nor are we to be surprised at this, as the Greeks were so much struck with the beauty of this bird, when first brought among them, that every person paid a fixed price for seeing it; and several people came to Athens, from Lacedæmon and Thessaly, purely to satisfy their curiosity.

It was probably first introduced into the West, merely on account of its beauty; but mankind, from contemplating its figure, soon came to think of serving it up for a different entertainment. Aufidius Hurco stands charged by Pliny with being the first who fattened up the peacock for the feast of the luxurious. Whatever there may be of delicacy in the flesh of a young peacock, it is certain an old one is very indifferent eating; nevertheless, there is no mention made of choosing the youngest; it is probable they were killed indiscriminately, the beauty of the feathers in some measure stimulating the appetite. Hortensius the orator, was the first who served them up at an entertainment at Rome; and from that time they were considered as one of the greatest ornaments of every feast. Whether the Roman method of cookery, which was much higher than ours, might not have rendered them more palatable than we find them at present, I cannot tell; but certain it is, they talk of the peacock as being the first of viands.

Its fame for delicacy, however, did not continue very long; for we find in the times of Francis the First, that it was a custom to serve up peacocks at the tables of the great, with an intention not to be eaten, but only to be seen. Their manner was to strip off the skin; and then preparing the body with the warmest spices, they covered it up again in its former skin; with all its plumage in full display, and no way injured by the preparation. The bird thus prepared was often preserved for

many years without corrupting; and it is asserted of the peacock's flesh, that it keeps longer unputrified than that of any other animal. To give a higher zest to these entertainments, on weddings particularly, they filled the bird's beak and throat with cotton and camphire, which they set on fire, to amuse and delight the company. I do not know that the peacock is much used at our entertainments at present, except now and then at an alderman's dinner, or common-council feast, when our citizens resolve to be splendid; and even then it is never served with its cotton and camphire.

Like other birds of the poultry kind, the peacock feeds upon corn, but its chief predilection is for barley. But as it is a very proud and fickle bird, there is scarcely any food that it will not at times covet and pursue. Insects and tender plants are often eagerly sought at a time that it has a sufficiency of its natural food provided more nearly. In the indulgence of these capricious pursuits walls cannot easily confine it; it strips the tops of houses of their tiles or thatch, it lays waste the labours of the gardener, roots up his choicest seeds, and nips his favourite flowers in the bud. Thus its beauty but ill recompenses for the mischief it occasions; and many of the more homely looking fowls are very deservedly preferred before it.

Nor is the peacock less a debauchee in its affections, than a glutton in its appetites. He is still more salacious than even the cock; and though not possessed of the same vigour, yet burns with more immoderate desire. He requires five females at least to attend him; and if there be not a sufficient number, he will even run upon and tread the sitting hen. For this reason, the peahen endeavours as much as she can, to hide her nest from the male, as he would otherwise disturb her sitting, and break her eggs.

The peahen seldom lays above five or six eggs in this climate before she sits. Aristotle describes her as laying twelve; and it is probable, in her native climate she may be thus prolific; for it is certain, that in the forests where they breed naturally, they are numerous beyond expression. This bird lives about twenty years; and not till its third year has it that beautiful variegated plumage that adorns its tail.

"In the kingdom of Cambaya," says Tavernier, "near the city of Baroch, whole flocks of them are seen in the fields. They are very shy, however, and it is impossible to come near

them. They run off swifter than the partridge; and hide themselves in the thickets, where it is impossible to find them. They perch by night upon trees; and the fowler often approaches them at that season with a kind of banner, on which a peacock is painted to the life on either side. A lighted torch is fixed on the top of this decoy; and the peacock when disturbed flies to what it takes for another, and is thus caught in a noose prepared for that purpose."

There are varieties of this bird, some of which are white, others crested: that which is called the *Peacock of Thibet*, is the most beautiful of the feathered creation, containing in its plumage all the most vivid colours, red, blue, yellow, and green, disposed in an almost artificial order, as if merely to please the eye of the beholder.*

* *The Japan Peacock*.—The Japan Peacock is only known to Europe by means of a painting sent by the emperor of Japan to the pope. It is about the size of the crested peacock; but the bill is larger, and ash-coloured; the iris yellow, and round the eye is red. On the top of the head is an upright crest four inches long, and shaped somewhat like an ear of corn. The colour is green mixed with blue. The top of the neck and head greenish, marked with spots of blue; the breast is blue and green-gold mixed; the belly, sides, and thighs are ash-colour, marked with black spots, streaked with white on the belly; the wing coverts and secondaries are not unlike the back; the greater quills are green, transversely barred with black lines, but growing yellowish towards the ends, where they are black; the upper tail-coverts are fewer than those of the common peacock, but much longer than the tail; they are of a chestnut brown with white shafts, and have at the end of each a large spot gilded in the middle, then blue, and surrounded with green; the legs are ash-coloured, and not furnished with spurs. The female of this species is smaller than the male, and differs in having the belly quite black, and the upper tail-coverts much shorter.

The Chinese Peacock.—The Chinese peacock is larger than the common peacock: the bill is black, but from the nostrils to the tip of the upper mandible red: the iris is yellow. The feathers on the crown of the head are sufficiently long to form a crest of a dull brown colour. The space between the bill and thighs is naked, with a few scattered hairs; the sides of the head are white; the neck is bright brown, striated across with dusky brown; the upper parts of the back, scapulars, and wing-coverts are dull brown, dotted with paler brown, and yellowish; besides which each feather is marked near the end with a roundish large spot of a gilded purple colour, changing into blue and green in different lights; the lower part of the back is dotted with white; all the under parts are brown, striated transversely with black; the quills are dusky; the secondaries are marked with the same spots as the rest of the wing; the upper tail-coverts are longer than the tail, and marked at the end with a spot like the wing feathers, each of which is surrounded first with a circle of black, and ultimately with

CHAP. IV.

THE TURKEY.

THE natal place of the cock and the peacock is pretty well ascertained, but there are stronger doubts concerning the turkey; some contending that it has been brought into Europe from the East Indies many centuries ago: while others assert that it is wholly unknown in that part of the world, that it is a native of the New Continent, and that it was not brought into Europe till the discovery of that part of the world.

Those who contend for the latter opinion very truly observe, that among all the descriptions we have of eastern birds, that of the turkey is not to be found; while on the contrary, it is very well known in the New Continent, where it runs wild about the woods. It is said by them to have been first seen in France in the reign of Francis I. and in England in that of Henry VIII. which is about the time when Mexico was first conquered by Spain. On the other hand it is asserted, that the turkey, so far from being unknown in Europe before that time, was known even to the ancients; and that *Ælian* has given a pretty just description of it. They allege, that its very name implies its having been brought from some part of the east; and that it is

an orange one; the legs and claws are brown; and on the back part of each leg are two spurs, one above the other. The female is a third smaller than the male. The head, neck, and under parts are brown; the head smooth; the upper parts are also brown, and the feathers marked with a dull blue spot surrounded with dirty orange; the feathers which cover the tail are similar, but marked at the end with an obscure dull oval spot of blue; the legs have no spurs.

The Thibet Peacock.—The Thibet peacock is about two feet and two inches long. The bill is above an inch and a half long, and cinereous; the iris yellow; the head, neck, and under parts are ash-coloured, marked with blackish lines; the wing-coverts, back, and rump are grey, with small white dots; besides which, on the wing-coverts and back are large round spots, of a fine blue, changing in different lights to violet and green gold; the quills and upper tail-coverts are also grey, marked with blackish lines: the quills have two round blue spots on each, like those of the coverts; on the outer webs and on each tail-feather, there are four of the same, two on each side of the web; the middle coverts are the longest, the others shorten by degrees; the legs are grey, furnished with two spurs behind; the claws are blackish. This bird is a native of the kingdom of Thibet, in Asia.

found among other dainties served up to the tables of the great, before that time among ourselves. But what they pretend to be the strongest proof is, that though the wild turkey be so numerous in America, yet the natives cannot contrive to tame it; and though hatched in the ordinary manner, nothing can render it domestic. In this diversity of opinions, perhaps it is best to suspend assent till more lights are thrown on the subject: however, I am inclined to concur with the former opinion.*

With us, when young, it is one of the tenderest of all birds; yet, in its wild state, it is found in great plenty in the forests of Canada, that are covered with snow above three parts of the year. In the natural woods they are found much larger than in their state of domestic captivity. They are much more beautiful also, their feathers being of a dark gray, bordered at the edges with a bright gold colour. These the savages of the country weave into cloaks to adorn their persons, and fashion into fans and umbrellas, but never once think of taking into keeping animals that the woods furnish them with in sufficient abundance. Savage man seems to find a delight in precarious possession. A great part of the pleasures of the chase lies in the uncertainty of the pursuit, and he is unwilling to abridge himself in any accidental success that may attend his fatigues. The hunting the turkey, therefore, makes one of his principal diversions; as its flesh contributes chiefly to the support of his family. When he has discovered the place of their retreat, which, in general, is near fields of nettles, or where there is plenty of any kind of grain, he takes his dog with him, which is trained to the sport, (a faithful rough creature, supposed to be originally reclaimed from the wolf,) and he sends him into the midst of the flock. The turkeys no sooner perceive their enemy, than they set off running at full speed, and with such swiftness, that they leave the dog far behind them; he follows, nevertheless, and sensible they must soon be tired, as they cannot go full speed for any length of time, he at last forces them to take shelter in a tree, where they sit quite spent and fatigued till the hunter comes up, and, with a long pole, knocks them down, one after the other.

This manner of suffering themselves to be destroyed, argues no great instinct in the animal; and, indeed, in their captive

* It is now universally allowed, that the turkey is originally a native of America.

state they do not appear to be possessed of much. They seem a stupid, vain, querulous tribe, apt enough to quarrel among themselves, yet without any weapons to do each other an injury. Every body knows the strange antipathy the turkey-cock has to a red colour; how he bristles, and, with his peculiar gobbling sound, flies to attack it.—But there is another method of increasing the animosity of these birds against each other, which is often practised by boys, when they have a mind for a battle. This is no more than to smear over the head of one of the turkeys with dirt, and the rest run to attack it with all the speed of impotent animosity; nay, two of them, thus disguised, will fight each other till they are almost suffocated with fatigue and anger.

But though so furious among themselves, they are weak and cowardly against other animals, though far less powerful than they. The cock often makes the turkey keep at a distance; and they seldom venture to attack him but with united force, when they rather oppress him by their weight, than annoy him by their arms. There is no animal, how contemptible soever, that will venture boldly to face the turkey-cock, that he will not fly from. On the contrary, with the insolence of a bully, he pursues any thing that seems to fear him, particularly lap-dogs and children, against both which he seems to have a peculiar aversion. On such occasions, after he has made them scamper, he returns to his female train, displays his plumage around, struts about the yard, and gobbles out a note of self-approbation.*

* The wild turkeys are much more bulky than the domestic turkeys, weighing from twenty even to sixty pounds. Their plumage is always of a uniform deep brown; all the feathers are slightly undulated with very delicate traits of brown. The males exhibit varying tints which give splendour to the plumage.

The wild turkeys fly in numerous flocks of many hundreds. They frequent woods and coppices during the day, where they feed on acorns. They return in the evening into marshes, where they pass the night. They perch on trees, and are not unfrequently hunted with hounds. Wild turkeys are found from the country of the Illinois, as far as the Isthmus of Panama. The birds which travellers have met more to the southward, and mistaken for turkeys, are hoccoos. They live for the most part in forests, and feed on wild fruits: the acorn of the green oak fattens them very much. Their flesh is preferable to that of the domestic breed, and its flavour approaches to that of the pheasant. These birds quit the woods in the months of Sep-

The female seems of a milder, gentler disposition. Rather querulous than bold, she hunts about in quest of grain, and pursuit of insects, being particularly delighted with the eggs of ants and caterpillars. She lays eighteen or twenty eggs, larger than those of a hen, whitish, but marked with spots resembling the freckles of the face. Her young are extremely tender at first, and must be carefully fed with curd chopped with dock-leaves; but as they grow older, they become more hardy, and follow the mother to considerable distances, in pursuit of insect food, which they prefer to any other. On these occasions, however, the female, though so large, and, as it would seem, so powerful a bird, gives them but very little protection against the

tomb, and approach inhabited places; accordingly, the natives of North America call this season the *turkey month*. They then hunt them, and kill great numbers, which are preserved in ice, and brought into the European establishments. The wild turkeys are now to be met with only very far in the interior. They are extremely shy, and though their flight is heavy, they know so well how to escape and conceal themselves, that they are discovered with difficulty. Those that are brought up in their native country, and which lead a rural life, and are never shut up, have yet become as degenerate as those of our poultry yards in Europe.

The turkey is unquestionably the largest of our poultry. Its usual length is three feet and a half, from the end of the bill to the extremity of the tail. Its height, about two feet, measuring from the soles to the summit of the head. The envergure is about four feet.

Turkey-hens are far from being as profitable, generally speaking, as our common hens. They have need of stimulating food, to excite them to lay, such as hempseed and buck-wheat. They have, however, two broods usually in the year, of about fifteen eggs, often less, especially in northern climates. The eggs are white, with some small spots of reddish yellow. The young ones on coming forth from the egg are very weak, and most assiduous care is requisite for the preservation of their existence. The strong sun kills them almost immediately. The frost gives them cold; but it is chiefly in wet weather that it is necessary to shelter them, without which they are certain to perish. Even the dew is pernicious to them. An elevated situation, and a dry sandy soil, suit them best; and even there it requires exceeding attention to turn them to any profit.

Turkeys are polygamous, and a single cock suffices for twelve or fifteen females. These females will serve for about five years, but the hens of two and three years old hatch the most assiduously. Those of but one year do not pay sufficient attention to their brood. The strongest and largest should always be chosen for this purpose. It happens more frequently with them than with hens that the eggs are sterile. In the cold parts of Europe, the female turkey has but one brood in the year, which usually takes place in March or April; but in countries exposed to a milder temperature, she has two: the first in February, the second in August.

attacks of any rapacious animal that comes in her way. She rather warns her young to shift for themselves, than prepares to defend them. "I have heard," says the Abbe la Pluche, "a turkey-hen, when at the head of her brood, send forth the most hideous screams, without knowing as yet the cause: however, her young, immediately when the warning was given, skulked under the bushes, the grass, or whatever else offered for shelter, or protection. They even stretched themselves at their full length upon the ground, and continued lying as motionless as if they were dead. In the meantime the mother, with her eyes directed upwards, continued her cries and screaming as before. Upon looking up to where she seemed to gaze, I discovered a black spot just under the clouds, but was unable, at first, to determine what it was; however, it soon appeared to be a bird of prey, though, at first, at too great a distance to be distinguished. I have seen one of these animals continue in this violent agitated state, and her whole brood pinned down as it were to the ground for four hours together; whilst their formidable foe has taken his circuits, has mounted, and hovered directly over their heads: at last, upon disappearing, the parent began to change her note, and sent forth another cry, which, in an instant, gave life to the whole trembling tribe, and they all flocked round her with expressions of pleasure, as if conscious of their happy escape from danger."

When once grown up, turkeys are very hardy birds, and feed themselves at very little expense to the farmer. Those of Norfolk are said to be the largest of this kingdom, weighing from twenty to thirty pounds. There are places, however, in the East Indies, where they are known only in their domestic state, in which they grow to the weight of sixty pounds.*

* A great variety of gallinaceous birds, which might easily be added to our domestic poultry, are peculiar to America. Such are especially the Curassows. In many parts of South America these birds have long been reclaimed; and it is really surprising, considering the extreme familiarity of their manners, and the facility with which they appear to pass from a state of nature to the tameness of domestic fowls, that they have not yet been introduced to the poultry-yards of Europe. That, with proper treatment, they would speedily become habituated to the climate we have no reason to doubt; on the contrary, numerous examples have shown that they thrive well even in its northern parts; and M. Temminck informs us that they have once at least been thoroughly acclimated in Holland, where they were

CHAP V.

THE PHEASANT.

It would surprise a sportsman to be told, that the pheasants which he finds wild in the woods, in the remotest parts of the kingdom, and in forests which can scarcely be said to have an

as prolific, in their domesticated state, as any of our common poultry. The establishment, however, in which this had been effected, was broken up by the civil commotions which followed in the train of the French revolution, and all the pains which had been bestowed upon the education of these birds were lost to the world by their sudden and complete dispersion. The task, which had at that time been in some measure accomplished, still remains to be performed; and it may not be too much to expect that the Zoological Society may be successful in perfecting what was then so well begun, and in naturalizing the curassows as completely as our ancestors have done the equally exotic, and, in their wild state, much less familiar, breeds of the turkey, the guinea-fowl, and the peacock. Their introduction would certainly be most desirable, not merely on account of their size and beauty, but also for the whiteness and excellence of their flesh, which is said by those who have eaten of it to surpass that of the guinea-fowl or of the pheasant in the delicacy of its flavour.

The plumage of the Crested Curassow is of a deep black with a slight gloss of green upon the head, crest, neck, back, wings, and upper part of the tail; and dull white beneath and on the lower tail-coverts. Its crest is from two to three inches in length, and occupies the whole upper surface of the head: it is curled and velvety in its appearance, and capable of being raised or depressed at will, in accordance with the temporary feelings by which the bird is actuated. The eyes are surrounded by a naked skin, which extends into the cere and there assumes a bright yellow colour. In size the bird is almost equal to a turkey. This species is a native of Mexico, Guiana, and Brasil, and probably extends itself over a large portion of the southern division of the American Continent. In the woods of Guiana it appears to be so extremely common that M. Sonnini regards it as the most certain resources of a hungry traveller, whose stock of provisions is exhausted, and who has consequently to trust to his gun for furnishing him with a fresh supply. They congregate together in numerous flocks, and appear to be under little or no uneasiness from the intrusion of men into their haunts. Even when a considerable number of them have been shot, the rest remain quietly perched upon the trees, apparently unconscious of the havoc that has been committed among them. This conduct is by no means the result of stupidity, but proceeds rather from the natural tameness and unsuspiciousness of their character. Those, however, which frequent the neighbourhood of inhabited places are said to be much wilder and more mistrustful, being kept constantly on the alert to avoid the pursuit of the hunters who destroy them in great numbers. They build their nests on the

owner, is a foreign bird, and was at first artificially propagated amongst us. They were brought into Europe from the banks of the Phasis, a river of Colchis, in Asia Minor; and from whence they still retain their name.

trees, forming them externally of branches interlaced with the stalks of herbaceous plants, and lining them internally with leaves. They generally lay but once a-year, during the rainy season; the number of their eggs being, according to Sonnini, five or six, and to D'Azara as many as eight. They are nearly as large as those of a turkey, but are white like a hen's, and with a thicker shell.

The *Galeated Curassow* is in size about equal to the Crested Curassow. Its head and neck are covered with short black velvety feathers; and all the rest of the plumage, with the exception of the white abdomen, and under tail-coverts, is of a brilliant black, exhibiting, in certain positions, a slight tinge of green. The tail-feathers are tipped with white. The legs are red; the claws yellow; the iris brown. The bill is of a bright red; and the protuberance by which it is surmounted (which is rounded in the young birds, and pear-shaped with the narrow end directed forwards in adult males), is of a livid slate-colour. This remarkable projection is more than two inches in length when fully developed; it is hard and bony externally, and internally cellular, the cells communicating with the cavity of the mouth. It is not visible until after the first moulting, when it begins to make its appearance in the form of a small tubercle, and attains a much larger size in the male than in the female. In other respects there is little difference between the sexes; and the young are only distinguished by a browner tinge. The windpipe descends for a considerable distance in front of the sternum, immediately beneath the skin, and makes no less than three distinct convolutions before passing into the cavity of the chest.

These birds are natives of Mexico, and live in large bands, perching upon the trees, but more commonly building their nests upon the ground. The females lead their young about in the same manner as the hen pheasant or the common hen. They subsist at first upon worms and insects; but as they grow older they add to these animal productions the fruits and seeds of vegetables. They are easily domesticated, even when taken adult; and appear to be equally capable of being acclimated in Europe with any of the other species. M. Temminck enumerates them among the birds which bred abundantly in the menagerie of M. Ameshoff prior to the breaking out of the French revolution.

The *Razor-billed Curassow's* most distinctive character consists in the form of the horny process that surmounts its bill, which rises above the level of the head, is flattened on the sides, runs anteriorly into a sharp edge, spreads out at the base where it is continuous with the bill, and is like it of a bright red. The whole of the upper parts, the fore part of the neck, the breast, and the legs, are black with a violet or purple gloss. The tail is of the same colour for the greater part of its length, but terminates in a white band; and the extreme part of the belly is of a chestnut brown. Above the base of the bill, which is covered with short velvety feathers concealing the nostrils, is a tuft of straight feathers; the iris is dusky, and the naked

Next to the peacock, they are the most beautiful of birds, as well for the vivid colour of their plumes, as for their happy mixtures and variety. It is far beyond the power of the pencil to draw any thing so glossy, so bright, or points so finely blended

legs are reddish brown. In the young bird the horny process of the bill is smaller, and less intensely red.

It has not yet been attempted to naturalize the present species in this quarter of the globe; but its flesh, according to Marcgrave, in whatever mode prepared, but especially when roasted, yields to that of no bird, either of Europe or America. He adds that it is domesticated and cultivated by the gentry of Brazil, on account of both its dignity and elegance.

The *Guan* is of the same family with the Curassows, and closely allied to those birds both in structure and general appearance. It is nevertheless distinguished by several remarkable peculiarities. The bill is much shallower, its transverse diameter exceeding its depth, somewhat elongated, and naked at the base; the nostrils are placed about the middle of the bill, and are not at all concealed by the advancement of the feathers of the head; a naked space surrounds the eyes; the skin of the throat is destitute of feathers, and capable of considerable distension; the claws are strong, curved, and pointed; and the hinder toe is articulated on the same level with the anterior ones, and consequently applies its whole length to the surface of the ground. As in the other genera of the family, the bill is convex above and curved at the point; the legs are of moderate length and without spurs; the wings short, with the sixth quill-feather longest; and the tail flat, rounded at the extremity, and formed of twelve broad feathers.

From its long domestication in the poultry yards of South America, it is subject to very extensive variations. It is the largest bird of the genus that has yet been discovered, measuring when fully grown about thirty inches in total length, of which the tail constitutes thirteen or fourteen. The whole upper surface of the body is of a dusky black or bronze colour with a gloss of green, which becomes olive in certain positions with regard to light.

Like most of the birds of this family, the Guan is remarkable for the circuitous course of its wind-pipe before entering the cavity of the chest. It has also some peculiarities in the structure of its upper larynx, which are well described by M. Temminck in his natural history of Gallinaceous Birds, published at Amsterdam in 1815.

The manners of the Guan have little to distinguish them from those of the Curassows. Although to all appearance equally capable of domestication, they have not yet been introduced into Europe in equal numbers with the latter birds, nor has the same success attended the attempts to propagate them in this quarter of the globe. We are told, however, by M. Temminck, that the proprietor of a Menagerie in the neighbourhood of Utrecht had bred them for several years; and there can be little doubt that with proper care and attention these birds might be added to the stock of our domesticated fowls. They are spoken of as furnishing an excellent dish for the table. In a wild state they inhabit Guiana and Brazil, and perhaps extend still further to the north. Their food consists principally of seeds and fruits, which they search for and eat upon the ground; but the greater part of

into each other. We are told that when Croesus, king of Lydia, was seated on his throne, adorned with royal magnificence, and all the barbarous pomp of eastern splendour, he asked Solon if he had ever beheld any thing so fine? The Greek philosopher, no way moved by the objects before him, or taking a pride in his native simplicity, replied, that after having seen the beautiful plumage of the pheasant, he could be astonished at no other finery.

In fact, nothing can satisfy the eye with a greater variety and richness of ornament than this beautiful creature. The iris of the eye is yellow; and the eyes themselves are surrounded with a scarlet colour, sprinkled with small specks of black. On the fore-part of the head there are blackish feathers mixed with a shining purple. The top of the head and the upper part of the neck are tinged with a darkish green, that shines like silk. In some, the top of the head is of a shining blue, and the head itself, as well as the upper part of the neck, appears sometimes blue and sometimes green, as it is differently placed to the eye of the spectator. The feathers of the breast, the shoulders, the middle of the back, and the sides under the wings, have a blackish ground, with edges tinged of an exquisite colour, which appears sometimes black and sometimes purple, according to the different lights it is placed in; under the purple there is a transverse streak of gold colour. The tail, from the middle feathers to the root, is about eighteen inches long; the legs, the feet, and the toes, are of the colour of horn. There are black spurs on the legs, shorter than those of a cock; there is a membrane that connects two of the toes together; and the male is much more beautiful than the female.

This bird, though so beautiful to the eye, is not less delicate

their existence is passed upon the trees, on the tops of which they perch, and in which they build their nests. They are not often found in large bands, but generally pair together with the strictest constancy. The females lay from two to five eggs. Their flight, like that of most gallinaceous birds, in consequence of the shortness of their wings, is low and heavy; and in the performance of this action they derive much assistance from their tail, the feathers of which may be expanded in the shape of a fan.

All the birds of this genus appear to be known in Brazil by the name of Jacu, pronounced Yacou, derived according to Maregrave from their note. This, as might be expected from the conformation of their trachea, is extremely loud, insomuch that when a considerable number are collected near the same spot, the very woods, to use the expression of the scientific traveller just quoted, re-echo with their clamorous cries.

when served up to the table. Its flesh is considered as the greatest dainty ; and when the old physicians spoke of the wholesomeness of any viands, they made their comparison with the flesh of the pheasant. However, notwithstanding all these perfections to tempt the curiosity or the palate, the pheasant has multiplied in its wild state ; and, as if disdaining the protection of man, has left him to take shelter in the thickest woods and the remotest forests. All others of the domestic kind, the cock, the turkey, or the pintada, when once reclaimed, have still continued in their domestic state, and persevered in the habits and appetites of willing slavery. But the pheasant, though taken from its native warm retreats, where the woods supply variety of food, and the warm sun suits its tender constitution, has still continued its attachment to native freedom ; and now wild among us, makes the most envied ornament of our parks and forests, where he feeds upon acorns and berries, and the scanty produce of our chilling climate.

This spirit of independence seems to attend the pheasant even in captivity. In the woods, the hen pheasant lays from eighteen to twenty eggs in a season ; but in a domestic state she seldom lays above ten. In the same manner when wild she hatches and leads up her brood with patience, vigilance, and courage ; but when kept tame, she never sits well ; so that a hen is generally her substitute upon such occasions ; and as for leading her young to their food, she is utterly ignorant of where it is to be found ; and the young birds starve, if left solely to her protection. The pheasant therefore, on every account, seems better left at large in the woods, than reclaimed to pristine captivity. Its fecundity when wild is sufficient to stock the forest ; its beautiful plumage adorns it ; and its flesh retains a higher flavour from its unlimited freedom.

However, it has been the aim of late to take these birds once more from the woods, and to keep them in places fitted for their reception. Like all others of the poultry kind, they have no great sagacity, and suffer themselves easily to be taken. At night they roost upon the highest trees of the wood ; and by day they come down into the lower brakes and bushes, where their food is chiefly found. They generally make a kind of flapping noise when they are with the females ; and this often apprises the sportsman of their retreats. At other times he tracts them in

the snow, and frequently takes them in springs. But of all birds they are shot most easily, as they always make a whirring noise when they rise, by which they alarm the gunner, and being a large mark, and flying very slow, there is scarcely any missing them.

Ah ! what avail his glossy, varying dyes,
His purpled crest, and scarlet circled eyes,
The vivid green his shining plumes unfold,
His painted wings, and breast that flames with gold.

PoPp.

When these birds are taken young into keeping, they become as familiar as chickens ; and when they are designed for breeding, they are put together in a yard, five hens to a cock ; for this bird, like all of the poultry kind, is very salacious. In her natural state the female makes her nest of dry grass and leaves ; the same must be laid for her in the pheasantry, and she herself will sometimes properly dispose them. If she refuses to hatch her eggs, then a common hen must be got to supply her place, which task she will perform with perseverance and success. The young ones are very difficult to be reared ; and they must be supplied with ants' eggs, which is the food the old one leads them to gather when wild in the woods. To make these go the farther, they are chopped up with curds, or other meat ; and the young ones are to be fed with great exactness, both as to the quantity and the time of their supply. This food is sometimes also to be varied, and woodlice, earwigs, and other insects, are to make a variety. The place where they are reared must be kept extremely clean ; their water must be changed twice or thrice a day ; they must not be exposed till the dew is off the ground in the morning ; and they should always be taken in before sunset. When they become adult, they very well can shift for themselves, but they are particularly fond of oats and barley.

In order to increase the breed, and make it still more valuable, Longolius teaches us a method that appears very peculiar. The pheasant is a very bold bird, when first brought into the yard among other poultry, not sparing the peacock, nor even such young cocks and hens as it can master ; but after a time it will live tamely among them, and will at last be brought to couple with a common hen. The breed thus produced take much stronger after the pheasant than the hen ; and in a few successions, if they be left to breed with a cock pheasant, (for

the mixture is not barren,) there will be produced a species more tame, stronger, and more prolific; so that he adds, that it is strange why most of our pheasantries are not stocked with birds produced in this manner.

The pheasant, when full grown, seems to feed indifferently upon every thing that offers. It is said by a French writer, that one of the king's sportsmen shooting at a parcel of crows, that were gathered round a dead carcase, to his great surprise upon coming up, found that he had killed as many pheasants as crows. It is even asserted by some, that such is the carnivorous disposition of this bird, that when several of them are put together in the same yard, if one of them happens to fall sick, or seems to be pining, that all the rest will fall upon, kill, and devour it. Such is the language of books; those who have frequent opportunities of examining the manners of the bird itself, know what credit ought to be given to such an account.

Of the pheasant, as of all other domestic fowl, there are many varieties. There are white pheasants, crested pheasants, spotted pheasants; but of all others, the golden pheasant of China is the most beautiful.* It is a doubt whether the peacock itself can bear the comparison. However, the natives of China would not have us consider it as their most beautiful bird, though covered all over with eyes, resembling in miniature those of the peacock. By their accounts, it is far exceeded by the fongwang, an imaginary bird, of which they give a most fantastic description. It is thus that the people of every country, though possessed of the greatest advantages, have still others that they would persuade strangers they enjoy, which have existence only in the imagination.

CHAP. VI.

THE PINTADO, OR GUINEA-HEN.

THIS is a very remarkable bird, and in some measure unites the characteristics of the pheasant and the turkey. It has the

* Owing to the prohibitory laws of China, it was long extremely difficult to obtain living specimens of this bird; and it was, in consequence, a desideratum in European aviaries; it is now, however, common enough in Europe.

fine delicate shape of the one, and the bare head of the other. To be more particular, it is about the size of a common hen, but as it is supported on longer legs, it looks much larger. It has a round back, with a tail turned downwards like a partridge. The head is covered with a kind of casque; and the whole plumage is black or dark gray, speckled with white spots. It has wattles under the bill, which do not proceed from the lower chap as in cocks, but from the upper, which gives it a very peculiar air; while its restless gait and odd chuckling sound distinguish it sufficiently from all other birds whatever.

It is well known all over Europe, and even better than with us, as the nations that border on the Mediterranean probably had it before us from those parts of Africa which lay nearest. Accordingly we find it in different countries called by different names, from the place whence they had it. They are by some called the *Barbary-hen*; by others, the *Tamis bird*; and by others, the *bird of Numidia*.^{*} We have given it the name of that part of Africa from whence, probably it was first brought.

In many parts of their native country, they are seen in vast flocks together, feeding their young, and leading them in quest of food. All their habits are like those of the poultry kind, and they agree in every other respect, except that the male and female are so much alike, that they can hardly be distinguished asunder. The only difference lies in the wattles described above; which in the cock are of a bluish cast; in the hen they are more inclining to a red. Their eggs, like their bodies, are speckled; in our climate, they lay but five or six in a season; but they are far more prolific in their sultry regions at home. They are kept among us rather for show than use, as their flesh is not much esteemed, and as they give a good deal of trouble in rearing.

^{*} The pintado is the bird formerly known to the ancients under the name of Meleagris or Numidian Fowl. Its flesh was much esteemed by the Romans. Among the varieties of this bird are the *Crested Pintado* and the *Mitred Pintado*.

CHAP. VII.

THE BUSTARD.

THE Bustard is the largest land bird that is a native of Britain. It was once much more numerous than it is at present; but the increased cultivation of the country, and the extreme delicacy of its flesh, has greatly thinned the species; so that a time may come when it may be doubted whether ever so large a bird was bred among us. It is probable that long before this the bustard would have been extirpated, but for its peculiar manner of feeding. Had it continued to seek shelter among our woods, in proportion as they were cut down, it must have been destroyed. If in the forest, the fowler might approach it without being seen; and the bird, from its size, would be too great a mark to be easily missed. But it inhabits only the open and extensive plain, where its food lies in abundance, and where every invader may be seen at a distance.

The bustard is much larger than the turkey, the male generally weighing from twenty-five to twenty-seven pounds. The neck is a foot long, and the legs a foot and a half. The wings are not proportionable to the rest of the body, being but four feet from the tip of the one to the other; for which reason the bird flies with great difficulty. The head and neck of the male are ash-coloured; the back is barred transversely with black, bright, and rust colour. The greater quill-feathers are black; the belly white; and the tail, which consists of twenty feathers, is marked with broad black bars.

It would seem odd, as was hinted before, how so large a land bird as this could find shelter in so cultivated a country as England; but the wonder will cease when we find it only in the most open countries, where there is scarce any approaching it without being discovered. They are frequently seen in flocks of fifty or more, in the extensive downs of Salisbury Plain, in the heaths of Sussex and Cambridgeshire, the Dorsetshire uplands, and so on as far as East Lothian in Scotland. In those extensive plains, where there are no weeds to screen the sportsman, nor hedges to creep along, the bustards enjoy an indolent security. Their food is composed of the berries that grow among

the heath, and the large earth-worms that appear in great quantities on the downs before sun-rising in summer. It is in vain that the fowler creeps forward to approach them, they have always sentinels placed at proper eminences, which are ever on the watch, and warn the flock of the smallest appearance of danger. All therefore that is left the sportsman, is the comfortless view of their distant security. He may wish ; but they are in safety.

It sometimes happens that these birds, though they are seldom shot by the gun, are often run down by the grayhounds. As they are voracious and greedy, they often sacrifice their safety to their appetite, and feed themselves so very fat, that they are unable to fly without great preparation. When the grayhound, therefore, comes within a certain distance, the bustard runs off flapping its wings, and endeavouring to gather air enough under them to rise ; in the meantime, the enemy approaches nearer and nearer, till it is too late for the bird even to think of obtaining safety by flight ; for just at the rise there is always time lost, and of this the bird is sensible ; it continues, therefore, on the foot, until it has got a sufficient way before the dog for flight, or until it is taken.

As there are few places where they can at once find proper food and security, so they generally continue near their old haunts, seldom wandering above twenty or thirty miles from home. As their food is replete with moisture, it enables them to live upon these dry plains, where there are scarcely any springs of water, a long time without drinking. Besides this, Nature has given the males an admirable magazine for their security against thirst. This is a pouch, the entrance of which lies immediately under the tongue, and capable of holding near seven quarts of water.* This is probably filled upon proper

* The size of this reservoir, seems something exaggerated : for with an addition of nearly fourteen pounds weight thrown forwards, the centre of gravity must be so much overbalanced as to destroy its power of flight, and impede its running. About half this quantity seems a probable sufficiency for all its wants. This singular reservoir was first discovered by Dr Douglas, who supposes that the bird fills it with water, to supply its thirst in the middle of those extensive plains where it is accustomed to wander. It likewise makes a further use of it in defending itself against the attacks of birds of prey : on these occasions, it throws out the water with such violence, as not unfrequently to baffle the pursuit of the enemy.

occasions, to supply the hen when sitting, or the young before they can fly.

Like all other birds of the poultry kind, they change their mates at the season of incubation, which is about the latter end of summer. They separate in pairs, if there be a sufficiency of females for the males : but when this happens to be otherwise, the males fight until one of them falls. In France, they often find some of those victims to gallantry dead in the fields, and no doubt are not displeased at the occasion.

They make their nests upon the ground, only just scraping a hole in the earth, and sometimes lining it with a little long grass or straw. There they lay two eggs only, almost of the size of a goose egg, of a pale olive brown, marked with spots of a darker colour. They hatch in about five weeks, and the young ones run about as soon as they are out of the shell.

The female is not much more than half the size of the male. The top of her head is of a deep orange, and the rest of the head brown. Her colours are not so bright as those of the male, and she wants the tuft on each side of the head. She also wants the reservoir.

There are eleven species of this bird ; viz. the Arabian Passurage, Ruffed, Indian, White-eared, White-chinned, Thick-kneed, Chilese, Great and Little Bustard. The two latter are natives of our island.

The *Little Bustard*.—Length only seventeen inches. The bill is pale brown ; irides red ; the top of the head is black, spotted with pale rust colour ; the sides of the head, the chin, and throat, are of a reddish white, marked with a few dark spots ; the whole neck is black, encircled with an irregular band of white near the top and bottom ; the back and wings are rust-colour, mottled with brown, and crossed with fine irregular black lines ; the under parts of the body, and outer edges of the wings, are white. The tail consists of eighteen feathers ; the middle ones are tawny, barred with black ; the others are white, marked with a few irregular bands of black : the legs are grey. The female is smaller, and has not the black collar on the neck ; in other respects she nearly resembles the male.

This bird is very uncommon in this country. It is very common in France, where it is taken in nets, like the partridge. It is a very shy and cunning bird ; if disturbed, it flies two or three hundred paces, not far from the ground, and then runs away much faster than one can follow on foot. The female lays her eggs in June, to the number of three or four, of a glossy green colour : as soon as the young are hatched, she leads them about, as the hen does her chickens. They begin to fly about the middle of August. Both this and the great bustard are excellent eating, and, we should imagine, would well repay the trouble of domestication ; indeed, it seems surprising that we should suffer these fine birds to run wild, and be in danger of total extinction, which, if properly cultivated, might afford as excellent a repast as our own domestic poultry, or even as the turkey, for which we are indebted to distant countries.

The bustards assemble in flocks in the month of October, and keep together till April. In winter, as their food becomes more scarce, they support themselves indiscriminately, by feeding on moles, mice, and even little birds, when they can seize them. For want of other food, they are contented to live upon turnip-leaves, and such like succulent vegetables. In some parts of Switzerland, they are found frozen in the fields in severe weather; but when taken to a warm place, they again recover. They usually live fifteen years, and are incapable of being propagated in a domestic state, as they probably want that food which best agrees with their appetite.

CHAP. VIII.

THE GROUS, AND ITS AFFINITIES.

The cock of the wood, the black cock, the grouse, and the ptarmigan—these are all birds of a similar nature, and chiefly found in heathy mountains and piny forests, at a distance from mankind. They might once indeed have been common enough all over England, when a great part of the country was covered with heath; but at present their numbers are thinned; the two first of this kind are utterly unknown in the south, and have taken refuge in the northern parts of Scotland, where the extensive heaths afford them security, and the forest shelter.*

* The following is a description of the more important varieties of grouse.

The *Ruffed Grouse*.—The size of this bird is between that of a pheasant and partridge. The bill is brownish. The head is crested; and, as well as all the upper parts, is variegated with different tints of brown mixed with black. The feathers on the neck are long and loose; and may be erected at pleasure, like those of the cock. The throat and the fore-part of the neck are orange brown; and the rest of the under-parts yellowish white, having a few curved marks on the breast and sides. The tail consists of eighteen feathers, all of which are crossed with narrow bars of black, and one broad band of the same near the end. The legs are covered to the toes (which are flesh-coloured, and pectinated at the sides,) with whitish hairs. The ruffed grouse has hitherto been found only on the new continent. He is a fine bird when his gaiety is displayed; that is, when he spreads his tail like that of a turkey-cock, and erects the circle of feathers round his neck like a ruff, walking with a very stately and even pace, and making a noise

The cock of the wood is sometimes of the size of a turkey, and often weighs near fourteen pounds; the black cock, of which the male is all over black, though the female is of the colour of a partridge, is about the size of a hen, and, like the former, is only found

somewhat like a turkey. This is the moment that the sportsman seizes to fire at him; for, if the bird sees that he is discovered, he immediately flies off to the distance of several hundred yards before he again settles. There is something very remarkable in what is called the *thumping* of these birds. This they do, as the sportsmen tell us, by clapping their wings against their sides. They stand upon an old fallen tree, and in this station they begin their strokes gradually, at about two seconds of time from one another, and repeat them quicker and quicker, until they make a noise not unlike distant thunder. This continues from the beginning about a minute; the bird ceases about six or eight minutes, and then begins again. The sound is often heard at a distance of nearly half a mile; and sportsmen take advantage of this note, to discover the birds, and shoot them. The grouse commonly practise their thumping during the spring and fall of the year; about nine or ten o'clock in the morning, and four or five in the afternoon.

The *Pinnated Grouse*.—"It is somewhat extraordinary," says Wilson, in his admirable American Ornithology, "that the European naturalists, in their various accounts of our different species of grouse, should have said little or nothing of the one now before us, which, in its voice, manners, and peculiarity of plumage, is the most singular, and, in its flesh, the most excellent, of all those of its tribe that inhabit the territory of the United States. Buffon has confounded it with the ruffed grouse, the common partridge of New England, or pheasant of Pennsylvania (*tetrao umbellus*); Edwards and Pennant have, however, discovered that it is a different species; but have said little of its note, of its flesh, or peculiarities; for, alas! there was neither voice, nor action, nor delicacy of flavour in the shrunk and decayed skin from which the former took his figure, and the latter his description; and to this circumstance must be attributed the barrenness and defects of both. This rare bird, though an inhabitant of different and very distant districts of North America, is extremely particular in selecting his place of residence; pitching only upon those tracts whose features and productions correspond with his modes of life, and avoiding immense intermediate regions that he never visits. Open dry plains, thinly interspersed with trees, or partially overgrown with shrub oak, are his favourite haunts.

"Their predilection for such situations will be best accounted for by considering the following facts and circumstances:—First, their mode of flight is generally direct, and laborious, and ill calculated for the labyrinth of a high and thick forest, crowded and intersected with trunks and arms of trees, that require continual angular evolution of wing, or sudden turnings, to which they are, by no means, accustomed. I have always observed them to avoid the high timbered groves that occur here and there in the barrens. Connected with this fact, is a circumstance related to me by a very respectable inhabitant of that country, viz. that one forenoon a cock grouse struck the stone chimney of his house with such force, as instantly to fall dead to the ground.

with us in the highlands of Scotland ; the grouse is about half as large again as a partridge, and its colour much like that of a woodcock, but redder ; the ptarmigan is still somewhat less, and is of a pale brown or ash colour. They are all distinguishable from other

“ Secondly, their known dislike of ponds, marshes, or watery places, which they avoid on all occasions, drinking but seldom, and, it is believed, never from such places. Even in confinement this peculiarity has been taken notice of. While I was in the State of Tennessee, a person living within a few miles of Nashville had caught an old hen grouse in a trap ; and, being obliged to keep her in a large cage, as she struck and abused the rest of the poultry, he remarked that she never drank, and that she even avoided that quarter of the cage where the cup containing the water was placed. Happening, one day, to let some water fall on the cage, it trickled down in drops along the bars, which the bird no sooner observed, than she eagerly picked them off, drop by drop, with a dexterity that showed she had been habituated to this mode of quenching her thirst ; and probably, to this mode only, in those dry and barren tracts, where, except the drops of dew, and drops of rain, water is very rarely to be met with. For the space of a week he watched her closely, to discover whether she still refused to drink ; but, though she was constantly fed with Indian corn, the cup and water still remained untouched and untasted. Yet no sooner did he again sprinkle water on the bars of the cage, than she eagerly and rapidly picked them off as before.

“ The last, and probably, the strongest inducement to their preferring these plains, is the small acorn of the shrub oak ; the strawberries, huckleberries, and partridgeberries, with which they abound, and which constitute the principal part of the food of these birds. These brushy thickets also afford them excellent shelter, being almost impenetrable to dogs or birds of prey.

But what appears to me the most remarkable circumstance relative to this bird, is, that not one of all those writers who have attempted its history, have taken the least notice of two extraordinary bags of yellow skin which mark the neck of the male, and which constitute so striking a peculiarity. These appear to be formed by an expansion of the gullet, as well as of the exterior skin of the neck, which, when the bird is at rest, hangs in loose, pendulous, wrinkled folds, along the side of the neck, the supplemental wings, at the same time, as well as when the bird is flying, lying along the neck. But when these bags are inflated with air, in breeding time, they are equal in size, and very much resemble in colour, a middle sized fully ripe orange. By means of this curious apparatus, which is very observable several hundred yards off, he is enabled to produce the extraordinary sound mentioned above, which, though it may easily be imitated, is yet difficult to describe by words. It consists of three notes, of the same tone, resembling those produced by the night hawks in their rapid descent ; each strongly accented, the last being twice as long as the others. When several are thus engaged, the ear is unable to distinguish the regularity of these triple notes, there being, at such times, one continued bumming, which is disagreeable and perplexing, from the impossibility of ascertaining from what distance, or even quarter, it proceeds. While uttering this, the bird exhibits all the ostentatious gesticulations of a turkey cock ; erecting and fluttering his

birds of the poultry kind by a naked skin of a scarlet colour, above the eyes, in the place and of the figure of eye-brows.

It seems to be something extraordinary, that all the larger wild animals of every species choose the darkest and the inmost

neck wings, wheeling and passing before the female, and close before his fellows, as in defiance. Now and then are heard some rapid and crackling notes, not unlike that of a person tickled to excessive laughter; and, in short, one can scarcely listen to them without feeling disposed to laugh from sympathy. These are uttered by the males while engaged in fight, on which occasion they leap up against each other, exactly in the manner of turkeys, seemingly with more malice than effect. This bunning continues from a little before daybreak to eight or nine o'clock in the morning, when the parties separate to seek for food. The pinnated grouse is nineteen inches long, twenty-seven inches in extent, and, when in good order, weighs about three pounds and a half."

The Black Grouse, or Black Cock.—This bird, though not larger than the common hen, weighs nearly four pounds; its length is about one foot ten inches, breadth two feet nine. The bill is black; the eyes dark blue; below each eye there is a spot of a dirty white colour, and above a large one, of a bright scarlet, which extends almost to the top of the head; the general colour of the plumage is a deep black, richly glossed with blue on the neck and rump; the lesser wing-coverts are dusky brown; the greater are white, which extends to the ridge of the wing, forming a spot of that colour on the shoulder, when the wing is closed: the quills are brown, the lower parts and tips of the secondaries are white, forming a bar of white across the wing; there is likewise a spot of white on the bastard wing; the feathers of the tail are almost square at the ends, and, when spread out, form a curve on each side; the under tail coverts are of a pure white; the legs and thighs are of a dark brown colour, mottled with white; the toes are toothed on the edges, like those of the former species. In some of our specimens the nostrils are thickly covered with feathers, whilst in others they are quite bare, probably owing to the different ages of the birds. These birds, like the former, are found chiefly in high and woody situations in the northern parts of our island; they are common in Russia, Siberia, and other northern countries: they feed on various kinds of berries and other fruits, the produce of wild and mountainous places. In summer they frequently come down from their lofty situations, for the sake of feeding upon corn. They do not pair; but, on the return of spring, the males assemble in great numbers, at their accustomed resorts, on the tops of high and heathy mountains, when the contest for superiority commences, and continues with great bitterness till the vanquished are put to flight. The victors, being left in possession of the field, place themselves on an eminence, clap their wings, and with loud cries give notice to their females, who immediately resort to the spot. It is said, that each cock has two or three hens, which seem particularly attached to him. The female is about one-third less than the male, and differs from him considerably in colour; her tail is likewise much less forked. She makes an artless nest on the ground, where she lays six or eight eggs of a yellowish colour, with freckles and spots of a rusty brown. The young cocks at first resemble the mother, and do not acquire their male garb till towards the

recesses of the woods for their residence, while the smaller kinds come more into the open and cultivated parts, where there is more food and more danger. It is thus with the birds I am describing : while the cock of the wood is seldom seen, except

end of autumn, when the plumage gradually changes to a deeper colour, and assumes that of a bluish black, which it afterwards retains.

The Red Grouse, or Red Game.—The weight of the male is about nineteen, and of the female fifteen ounces. The bill is black ; and at the base of the lower mandible there is on each side a white spot. Each eye is arched with a large, naked, scarlet spot. The throat is red. The plumage of the upper part of the body is mottled with dusky red and black. The breast and belly are purplish, crossed with small dusky lines. The heathy and mountainous parts of the northern counties of England are in general well stocked with red grouse. These birds are likewise very common in Wales, and the highlands of Scotland ; but they have not yet been observed in any of the countries of the continent. In winter they are usually found in flocks of sometimes forty or fifty in number, which are termed, by sportsmen, *packs*, and become remarkably shy and wild. They keep near the summits of the heathy hills, seldom descending to the lower grounds ; here they feed on the mountain-berries, and on the tender tops of the heath. They pair in spring ; and the females lay from six to ten eggs, in a rude nest formed on the ground. The young brood (which during the first year are called *poults*) follow the hen till the approach of winter, when they unite with several others into packs. Red grouse have been known to breed in confinement, in the menagerie of the late Dutchess Dowager of Portland. This was, in some measure, effected by her grace causing fresh pots of heath to be placed in the menagerie almost every day. The flesh, as in all others of his tribe, is an excellent food ; but it soon corrupts. To prevent this, the bird should be drawn immediately after they are shot.

White Grouse, or Ptarmigan.—This bird is nearly the same size as the red grouse. Its bill is black ; the upper parts of its body are of a pale brown or ash-colour, mottled with small dusky spots and bars ; the bars on the head and neck are somewhat broader, and are mixed with white ; the under parts are white, as are also the wings, excepting the shafts of the quills, which are black. This is its summer dress, which in winter is changed to a pure white, excepting that in the male there is a black line between the bill and the eye. The tail consists of sixteen feathers ; the two middle ones are ash-coloured in summer, and white in winter ; the next two are slightly marked with white near the ends ; the rest are wholly black : the upper tail coverts are long, and almost cover the tail. The white grouse is fond of lofty situations, where it braves the severest cold. It is found in most of the northern parts of Europe, even as far as Greenland ; in this country it is only to be met with on the summits of some of our highest hills, chiefly in the highlands of Scotland, in the Hebrides and Orkneys, and sometimes, but rarely, on the lofty hills of Cumberland and Wales. Buffon, speaking of this bird, says, that it avoids the solar heat, and prefers the biting frost on the tops of mountains ; for as the snow melts on the sides of mountains, it constantly ascends, till it gains the summit, where it forms holes and burrows in the snow. They pair at the same time as the red grouse. The female

on the inaccessible parts of heathy mountains, or in the midst of piny forests, the grouse is found in great numbers in the neighbourhood of corn-fields, where there is heath to afford retreat and shelter.—Their food too somewhat differs; while the smaller kind lives upon heath blossoms, cranberries, and corn, the larger feeds upon the cones of the pine-tree; and will sometimes entirely strip one tree before it offers to touch those of another, though just beside him. In other respects, the manners of these birds are the same; being both equally simple in their diet, and licentious in their amours.

The Cock of the Wood, for it is from him we will take our description, is, as was said, chiefly fond of a mountainous and woody situation. In winter he resides in the darkest and inmost part of the woods; in summer, he ventures down from his retreats, to make short depredations on the farmer's corn.

lays eight or ten eggs, which are white, spotted with brown: she makes no nest, but deposits them on the ground. In winter they fly in flocks; and are so little accustomed to the sight of man, that they are easily shot, or taken in a snare. They feed on the wild productions of the hills, which sometimes gives the flesh a bitter, but not unpalatable taste; it is dark-coloured, and, according to M. Buffon, has somewhat the flavour of the hare.

The Rock Grouse.—Orange, with black bands and white blotches; the toes are downy; the tail feathers black, tipped with white; the middle ones are entirely white. The rock grouse inhabits Hudson's Bay; is less than the last; it does not frequent woods, but sits on the tops of rocks, and makes a cry like a man calling with a loud voice.

The Sand Grouse.—Its collar, belly, and vent are black; the tail feathers are barred with brown and grey, and tipped with white; the two middle ones are tawnyish: the head is ashy; the chin, pale yellow, with a black semi-circle on the throat, the feathers truncate and shining; the tail is barred, the two middle feathers subulate at the tip; the legs behind are naked, having a small spur. The female of this species is yellowish, having the head and neck spotted with black, and the back is barred with black.

The Heteroclitous Grouse.—The feet are three-toed; the toes are downy, and connected nearly to the tips. The heteroclitous grouse inhabits the southern deserts of Tartary; it is an ambiguous bird, between the bustard and the grouse. The bill is more slender than in others of the tribe; the upper mandible neither arched, nor receiving the lower one. Its head and neck are hoary; the chin tawnyish, with an orange spot on each side of the neck; the back is waved with grey and black; the breast is of a pale reddish ash-colour; the belly, flanks, and vent are black; the wings long and pointed, white beneath, and dotted with black above.

Among the other varieties of grouse, are the *Hazel Grouse*, pretty generally spread throughout the central countries of Europe—the *Pintado Grouse*, a native of the cold regions of North America—and the *Willow Grouse*, which inhabits the north of Europe and America, as far as the ices of the pole.

The delicacy of his flesh, in some measure, sets a high price upon his head ; and as he is greatly sought after, so he continues, when he comes down from the hills, always on his guard. Upon these occasions, he is seldom surprised ; and those who would take him, must venture up to find him in his native retreats.

The cock of the wood, when in the forests, attaches himself principally to the oak and the pine-tree ; the cones of the latter serving for his food, and the thick boughs for a habitation. He even makes a choice of what cones he shall feed upon ; for he sometimes will strip one tree bare before he will deign to touch the cones of another. He feeds also upon ants' eggs, which seem a high delicacy to all birds of the poultry kind : cranberries are likewise often found in his crop ; and his gizzard, like that of domestic fowls, contains a quantity of gravel, for the purposes of assisting his powers of digestion.

At the earliest return of spring, this bird begins to feel the genial influence of the season. During the month of March, the approaches of courtship are continued, and do not desist till the trees have all their leaves and the forest is in full bloom. During this whole season, the cock of the wood is seen at sunrise and setting, extremely active, upon one of the largest branches of the pine-tree. With his tail raised and expanded like a fan, and the wings drooping, he is seen walking backward and forward, his neck stretched out, his head swollen and red, and making a thousand ridiculous postures : his cry upon that occasion is a kind of loud explosion, which is instantly followed by a noise like the whetting of a scythe, which ceases and commences alternately for about an hour, and is then terminated by the same explosion.

During the time this singular cry continues, the bird seems entirely deaf and insensible of every danger ; whatever noise may be made near him, or even though fired at, he still continues his call ; and this is the time that sportsmen generally take to shoot him. Upon all other occasions, he is the most timorous and watchful bird in nature ; but now he seems entirely absorbed by his instincts ; and seldom leaves the place where he first begins to feel the accesses of desire. This extraordinary cry, which is accompanied by a clapping of the wings, is no sooner finished, than the female, hearing it, replies, approaches,

and places herself under the tree, from whence the cock descends to impregnate her. The number of females that, on this occasion, resort to his call is uncertain ; but one male generally suffices for all.

The female is much less than her mate, and entirely unlike him in plumage, so that she might be mistaken for a bird of another species : she seldom lays more than six or seven eggs, which are white, and marked with yellow, of the size of a common hen's egg ; she generally lays them in a dry place, and a mossy ground, and hatches them without the company of the cock. When she is obliged, during the time of incubation, to leave her eggs in quest of food, she covers them up so artfully, with moss or dry leaves, that it is extremely difficult to discover them. On this occasion, she is extremely tame and tranquil, however wild and timorous in ordinary. She often keeps to her nest, though strangers attempt to drag her away.

As soon as the young ones are hatched, they are seen running with extreme agility after the mother, though sometimes they are not entirely disengaged from the shell. The hen leads them forward, for the first time, into the woods, shows them ants' eggs, and the wild mountain-berries, which, while young, are their only food. As they grow older, their appetites grow stronger, and they then feed upon the tops of heather, and the cones of the pine-tree. In this manner they soon come to perfection : they are a hardy bird, their food lies everywhere before them, and it would seem that they should increase in great abundance. But this is not the case ; their numbers are thinned by rapacious birds and beasts of every kind ; and still more by their own salacious contests.

As soon as the clutching is over, which the female performs in the manner of a hen, the whole brood follows the mother for about a month or two ; at the end of which the young males entirely forsake her, and keep in great harmony together till the beginning of spring. At this season, they begin for the first time, to feel the genial access ; and then adieu to all their former friendships ! They begin to consider each other as rivals ; and the rage of concupiscence quite extinguishes the spirit of society. They fight each other like game-cocks ; and at that time are so inattentive to their own safety, that it often happens that **two or three** of them are killed at a shot. It is probable that in

these contests, the bird which comes off victorious takes possession of the female seraglio, as it is certain they have no faithful attachments.

CHAP. IX.

OF THE PARTRIDGE, AND ITS VARIETIES.

THE Partridge may be particularly considered as belonging to the sportsman. It is a bird which even our laws have taken under protection ; and, like a peacock or a hen, may be ranked as a private property. The only difference now is, that we feed one in our farms, the other in our yards : that these are contented captives ; those, servants that have it in their power to change their master, by changing their habitation.*

“ These birds,” says Willoughby, “ hold the principal place in the feasts and entertainments of princes ; without which their feasts are esteemed ignoble, vulgar, and of no account. The Frenchmen do so highly value, and are so fond of, the partridge,

1 This account is from the *Journal Œconomique*, and may be relied on.

* The length of the partridge is about 13 inches. The bill is light brown ; eyes hazel ; the general colour of its plumage is brown and ash, elegantly mixed with black ; each feather is streaked down the middle with buff colour ; the sides of the head are tawny ; under each eye there is a small saffron-coloured spot, which has a granulated appearance, and between the eye and the ear a naked skin of a bright scarlet, which is not very conspicuous but in old birds ; on the breast there is a crescent of a deep chesnut colour ; the tail is short ; the legs are of a greenish white, and are furnished with a small knob behind. The female has no crescent on the breast, and her colours in general are not so distinct and bright as those of the male.

Partridges pair early in the spring ; the female lays from fourteen to eighteen or twenty eggs, making her nest of dry leaves or grass upon the ground. The young birds learn to run as soon as hatched, frequently encumbered with part of the shell sticking to them. It is not uncommon to introduce partridges under the common hen, which hatches and rears them as her own. In this case, the young birds require to be fed with ants' eggs, which are their favourite food, and without which it is almost impossible to bring them up ; they likewise eat insects, and when full grown, feed on all kinds of grain and young plants. The affection of the partridge for her young is peculiarly strong and lively ; and she is greatly assisted in her care of rearing them by her mate.

that if they be wanting, they utterly slight and despise the best-spread tables ; as if there could be no feast without them." But however this might be in the times of our historian, the partridge is now too common in France to be considered as a delicacy : and this, as well as every other simple dish, is exploded for luxuries of a more compound invention.

In England, where the partridge is much scarcer, and a great deal dearer, it is still a favourite delicacy at the tables of the rich ; and the desire of keeping it to themselves, has induced them to make laws for its preservation, no way harmonizing with the general spirit of English legislation. What can be more arbitrary than to talk of preserving the game ; which, when defined, means no more than that the poor shall abstain from what the rich have taken a fancy to keep for themselves ? If these birds could, like a cock or a hen, be made legal property, could they be taught to keep within certain districts, and only feed on those grounds, that belong to the man whose entertainments they improve, it then might, with some show of justice, be admitted, that as a man fed them, so he might claim them. But this is not the case ; nor is it in any man's power to lay a restraint upon the liberty of these birds, that, when let loose, put no limits to their excursions. They feed every where ; upon every man's ground ; and no man can say these birds are fed only by me. Those birds which are nourished by all, belong to all ; nor can any one man, or any set of men, lay claim to them, when still continuing in a state of nature.

I never walked out about the environs of Paris, that I did not consider the immense quantity of game that was running almost tame on every side me, as a badge of the slavery of the people ; and what they wished me to observe as an object of triumph, I always regarded with a kind of secret compassion : yet this people have no game-laws for the remoter parts of the kingdom ; the game is only preserved in a few places for the king, and is free in most places else. In England, the prohibition is general ; and the peasant has not a right to what even slaves, as he is taught to call them, are found to possess.

Of partridges there are two kinds ; the gray and the red.*

* Modern ornithologists have ascertained many more varieties of partridges. The *Greek Partridge* is more bulky than the red, with which it has frequently been confounded.

The red partridge is the largest of the two, and often perches upon trees ; the gray, with which we are best acquainted in England, is most prolific, and always keeps on the ground.

The partridge seems to be a bird well known all over the world, as it is found in every country, and in every climate ; as well in the frozen regions about the pole, as the torrid tracts under the equator. It even seems to adapt itself to the nature of the climate where it resides. In Greenland, the partridge, which is brown in summer, as soon as the icy winter sets in, begins to take a covering suited to the season : it is then clothed with a warm down beneath ; and its outward plumage assumes the colour of the snows amongst which it seeks its food. Thus it is doubly fitted for the place, by the warmth and the colour of its plumage ; the one to defend it from the cold, the other to prevent its being noticed by the enemy. Those of Barakonda, on the other hand, are longer-legged, much swifter of foot, and choose the highest precipices and rocks to reside in.

They all, however, agree in one character, of being immoderately addicted to venery ; and, as some writers affirm, often to an unnatural degree. It is certain the male will pursue the hen even to her nest ; and will break her eggs, rather than not indulge his inclinations. Though the young ones have kept together in flocks during the winter, when they begin to pair in spring, their society disperses, and combats, very terrible with respect to each other, ensue. Their manners, in other circumstances, resemble all those of poultry in general ; but their cunning and instincts seem superior to those of the larger kinds. Perhaps, as they live in the very neighbourhood of their enemies, they have more frequent occasion to put their little arts in practice ; and learn, by habit, the means of evasion or safety. Whenever, therefore, a dog, or other formidable animal, approaches their nest, the female uses every means to draw him away. She keeps just before him, pretends to be incapable of flying, just hops up, and then falls down before him, but never goes off so far as to discourage her pursuer. At length, when she has drawn him entirely away from her secret treasure, she at once takes wing, and fairly leaves him to gaze after her in despair.

After the danger is over, and the dog withdrawn, she then calls her young, who assemble at once at her cry, and follow

where she leads them. There are generally from ten to fifteen in a covey; and, if unmolested, they live from fifteen to seventeen years.

There are several methods of taking them, as is well known; that by which they are taken in a net with a setting dog, is the most pleasant, as well as the most secure. The dog, as every body knows, is trained to this exercise by a long course of education: by blows and caresses he is taught to lie down at the word of command; a partridge is shown him, and he is then ordered to lie down: he is brought into the field, and when the sportsman perceives where the covey lies, he orders his dog to crouch: at length the dog, from habit, crouches wherever he approaches a covey; and this is the signal which the sportsman receives for unfolding, and covering the birds with his net. A covey thus caught, is sometimes fed in a place proper for their reception; but they can never be thoroughly tamed, like the rest of our domestic poultry.

CHAP. X.

THE QUAIL.

THE last of the poultry kind that I shall mention, is the quail; a bird much smaller than any of the former, being not above half the size of a partridge. The feathers of the head are black, edged with rusty brown; the breast is of a pale yellowish red, spotted with black; the feathers on the back are marked with lines of a pale yellow, and the legs are of a pale hue. Except in the colours thus described, and the size, it every way resembles a partridge in shape; and, except that it is a bird of passage, all others of the poultry kind, in its habits and nature.*

* They are found in most parts of Great Britain, but no where in great quantity. The time of their migration from this country is August or September: they are supposed to winter in Africa; and they return early in the spring. At their arrival in Alexandria, such multitudes are exposed in the markets for sale, that three or four may be bought for a medina, a coin less than three farthings in value. Crews of merchant vessels have been fed upon them; and complaints have sometimes been laid at the consul's office, by mariners against their captains, for giving them nothing but

The quail is by all known to be a bird of passage ; and yet if we consider its heavy manner of flying, and its dearth of pluinage, with respect to its corpulence, we shall be surprised how a bird so apparently ill qualified for migration, should take such extensive journeys. Nothing, however, is more certain : “ When we sailed from Rhodes to Alexandria,” say Bellonius, “ about autumn, many quails, flying from the north to the south, were taken in our ship ; and sailing at spring-time, the contrary way, from the south to the north, I observed them on their return, when many of them were taken in the same manner.” This account is confirmed by many others ; who aver, that they choose a north wind for these adventures ; the south wind being very unfavourable, as it retards their flight, by moistening their plumage.

quails to eat. With wind and weather in their favour, they have been known to perform a flight of fifty leagues across the Black Sea, in the course of a night ; a wonderful distance for so short-winged a bird. Such prodigious quantities have appeared on the western coast of the kingdom of Naples, in the vicinity of Netuno, that a hundred thousand have, in one day, been caught within the space of three or four miles. Most of them are taken to Rome, where they are in great request, and are sold at extremely high prices.—Clouds of quails also alight, in spring, along the coasts of Provence ; especially in the lands belonging to the bishop of Frejus, which borders on the sea. Here they are sometimes found so exhausted, that for a few of the first days they may be taken with the hand. In some parts of the south of Russia, they abound so greatly, that at the time of their migration they are caught by thousands, and sent in casks to Moscow and Petersburg.

In peaceful times we import great quantities of these birds from France, for the table ; all of which are males. They are conveyed by stage coaches, in a large square box, divided into five or six compartments, one above another, just high enough to admit the quails to stand upright, and each box containing about a hundred birds. Were they allowed a greater height than this, they would soon kill themselves ; and even with this precaution, the feathers of the top of the head are generally beaten off. These boxes have wire on the fore-part, and each partition is furnished with a small trough for food. They may be forwarded in this manner, without difficulty, to great distances.

With respect to these birds having a distinct knowledge of the precise time for emigration, we have a very singular fact in some young quails, which having been bred in cages from the earliest part of their lives, had never enjoyed, and therefore could not feel the loss of liberty. For four successive years they were observed to be restless, and to flutter with unusual agitations regularly in September and April ; and this uneasiness lasted thirty days at each time. It began constantly an hour before sun-set. The birds passed the whole night in these fruitless struggles, and always on the following day appeared dejected and stupid.

There are twenty-three species of quails.

They then fly two by two ; continuing, when their way lies over land, to go faster by night than by day ; and to fly very high, to avoid being surprised or set upon by birds of prey. However, it still remains a doubt whether quails take such long journeys as Bellonius has made them perform. It is now asserted by some, that the quail only migrates from one province of a country to another. For instance, in England, they fly from the inland counties, to those bordering on the sea, and continue there all the winter. If frost or snow drive them out of the stubble-fields or marches, they then retreat to the sea-side, shelter themselves among the weeds, and live upon what is thrown up from the sea upon shore. Particularly in Essex, the time of their appearance upon the coasts of that country exactly coincides with their disappearance from the more internal parts of the kingdom ; so that what has been said of their long flights, is probably not so well founded as is generally supposed.

These birds are much less prolific than the partridge ; seldom laying more than six or seven whitish eggs, marked with ragged rust-coloured spots. But their ardour in courtship yields scarcely to any other bird, as they are fierce and cruel at that season to each other, fighting most desperately, and (a punishment they richly deserve) being at that time very easily taken. Quail-fighting was a favourite amusement among the Athenians : they abstained from the flesh of this bird, deeming it unwholesome, as supposing that it fed upon the white hellebore ; but they reared great numbers of them, for the pleasure of seeing them fight ; and staked sums of money, as we do with regard to cocks, upon the success of the combat. Fashion, however, has at present changed with regard to this bird ; we take no pleasure in its courage, but its flesh is considered as a very great delicacy.

Quails are easily caught by a call : the fowler, early in the morning, having spread his net, hides himself under it among the corn ; he then imitates the voice of the female with his quail-pipe, which the cock hearing, approaches with the utmost assiduity ; when he has got under the net, the fowler then discovers himself, and terrifies the quail, who attempting to get away, entangles himself the more in the net, and is taken. The quail may thus very well serve to illustrate the old adage, that every passion, carried to an inordinate excess, will at last lead to ruin.

BOOK IV.

OF BIRDS OF THE PIE KIND.

CHAP. I.

OF BIRDS OF THE PIE KIND.

IN marshalling our army of the feathered creation, we have placed in the van a race of birds long bred to war, and whose passion is slaughter; in the centre we have placed the slow and heavy laden, that are usually brought into the field to be destroyed; we now come to a kind of light infantry, that partake something of the spirit of the two former, and yet belonging to neither. In this class we must be content to marshal a numerous irregular tribe, variously armed, with different pursuits, appetites, and manners; not formidably formed for war, and yet generally delighting in mischief, not slowly and usefully obedient, and yet without any professed enmity to the rest of their fellow tenants of air.

To speak without metaphor; under this class of birds we may arrange all that noisy, restless, chattering, teasing tribe, that lies between the hen and the thrush, that, from the size of the raven down to that of the woodpecker, flutter round our habitations, and rather with the spirit of pilferers than of robbers, make free with the fruits of human industry.

Of all the other classes, this seems to be that which the least contributes to furnish out the pleasures, or supply the necessities of man. The falcon hunts for him; the poultry tribe supplies him with luxurious food; and the little sparrow race delight him with the melody of their warblings. The crane kind make a studied variety in his entertainments; and the class of ducks are not only many of them delicate in their flesh, but extremely useful for their feathers. But in the class

of the pie kind, there are few, except the pigeon, that are any way useful. They serve rather to teaze man, than to assist or amuse him. Like faithless servants, they are fond of his neighbourhood, because they mostly live by his labour; but their chief study is what they can plunder in his absence, while their deaths make no atonement for their depredation.

But though, with respect to man, this whole class is rather noxious than beneficial; though he may consider them in this light, as false, noisy, troublesome neighbours, yet, with respect to each other, no class of birds are so ingenious, so active, or so well fitted for society. Could we suppose a kind of morality among birds, we should find that these are by far the most industrious, the most faithful, the most constant, and the most connubial. The rapacious kinds drive out their young before they are fit to struggle with adversity; but the pie kind cherish their young to the last. The poultry class are faithless and promiscuous in their courtship; but these live in pairs, and their attachments are wholly confined to each other. The sparrow kind frequently overleap the bounds of nature, and make illicit varieties; but these never. They live in harmony with each other; every species is true to its kind, and transmits an unpoluted race to posterity.

As other kinds build in rocks or upon the ground, the chief place where these build is in trees or bushes; the male takes his share in the labours of building the nest, and often relieves his mate in the duties of incubation. Both take this office by turns; and when the young are excluded, both are equally active in making them an ample provision.

They sometimes live in societies; and in these there are general laws observed, and a kind of republican form of government established among them. They watch not only for the general safety, but for that of every other bird of the grove. How often have we seen a fowler, stealing in upon a flock of ducks or wild geese, disturbed by the alarming note of a crow or a magpie: its single voice gave the whole thoughtless tribe warning, and taught them in good time to look to their safety.

Nor are these birds less remarkable for their instincts than their capacity for instruction. There is an apparent cunning or archness in the look of the whole tribe; and I have seen crows and ravens taught to fetch and carry with the docility of a

spaniel. Indeed, it is often an exercise that, without teaching, all this tribe are but too fond of. Every body knows what a passion they have for shining substances, and such toys as some of us put a value upon. A whole family has been alarmed at the loss of a ring; every servant has been accused, and every creature in the house, conscious of their own innocence, suspected each other; when to the utter surprise of all, it has been found in the nest of a tame magpie or a jackdaw, that nobody had ever thought of.

However, as this class is very numerous, it is not to be supposed that the manners are alike in all. Some, such as the pigeon, are gentle and serviceable to man; others are noxious, capricious, and noisy. In a few general characters they all agree; namely, in having hoarse voices, slight active bodies, and a facility of flight, that baffles even the boldest of the rapacious kinds in the pursuit. I will begin with those birds which most properly may be said to belong to this class, and go on till I finish with the pigeon, a harmless bird, that resembles this tribe in little else except their size, and that seems to be the shade uniting the pie and the sparrow kind into one general picture.

It is not to be expected that in this sketch of the great magazine of nature, we can stop singly to contemplate every object. To describe the number that offers would be tedious, and the similitude that one bears to another would make the history disgusting. As a historian in relating the actions of some noble people does not stop to give the character of every private man in the army, but only of such as have been distinguished by their conduct, courage, or treachery; so should the historian of nature only seize upon the most striking objects before him; and having given one common account of the most remarkable, refer the peculiarities of the rest to their general description.

CHAP. II.

OF THE RAVEN, THE CROW, AND THEIR AFFINITIES.

THE Raven, the Carrion-crow, and the Rook, are birds so well known, that a long description would but obscure our

ideas of them. The raven is the largest of the three, and distinguished from the rest not only by his size, but by his bill being somewhat more hooked than that of the rest. As for the carrion-crow and the rook, they so strongly resemble each other both in make and size, that they are not easily distinguished asunder. The chief difference to be found between them lies in the bill of the rook ; which, by being frequently thrust into the ground to fetch out grubs and earth-worms, is bare of feathers as far as the eyes, and appears of a whitish colour. I differs also in the purple splendour or gloss of its feathers, which in the carrion-crow are of a dirty black. Nor is it amiss to make these distinctions, as the rook has but too frequently suffered for its similitude to the carrion-crow ; and thus a harmless bird, that feeds only upon insects and corn, has been destroyed for another that feeds upon carrion, and is often destructive among young poultry.

The manners of the raven and the carrion-crow are exactly similar ; they both feed upon carrion ; they fly only in pairs ; and will destroy other birds, if they can take them by surprise. But it is very different with the rook, the daw, and the Cornish chough, which may be all ranked in this order. They are sociable and harmless ; they live only upon insects and grain ; and wherever they are, instead of injuring other birds, they seem sentinels for the whole feathered creation. It will be proper, therefore, to describe these two sorts according to their respective appetites, as they have nothing in common but the very strong similitude they bear to each other in their colour and formation.

The raven is a bird found in every region of the world ; strong and hardy, he is uninfluenced by the changes of the weather ; and when other birds seem numbed with cold, or pining with famine, the raven is active and healthy, busily employed in prowling for prey, or sporting in the coldest atmosphere. As the heats at the line do not oppress him, so he bears the cold of the polar countries with equal indifference. He is sometimes indeed seen milk white ; and this may probably be the effect of the rigorous climates of the north. It is most likely that this change is wrought upon him as upon most other animals in that part of the world, where their robes, particularly in winter, assume the colour of the country they inhabit. As in

old age, when the natural heat decays, the hair grows gray, and at last white; so among these animals the cold of the climate may produce a similar languishment of colour, and may shut up those pores that conveyed the tincturing fluids to the extremest parts of the body.

However this may be, white ravens are often shown among us, which I have heard some say, are rendered thus by art; and this we could readily suppose, if they were as easily changed in their colour, as they are altered in their habits and dispositions. A raven may be reclaimed to almost every purpose to which birds can be converted. He may be trained up for fowling like a hawk; he may be taught to fetch and carry like a spaniel; he may be taught to speak like a parrot; but the most extraordinary of all is, that he can be taught to sing like a man. I have heard a raven sing the Black Joke with great distinctness, truth, and humour.*

Indeed, when the raven is taken as a domestic, he has many qualities that render him extremely amusing. Busy, inquisitive,

* At the seat of the earl of Aylesbury, in Wiltshire, a tame raven, that had been taught to speak, used to ramble about in the park; there he was commonly attended and beset with crows, rooks, and others of his inquisitive tribe. When a considerable number of these were collected round him, he would lift up his head, and with a hoarse and hollow voice shout out the world Holla! This would instantly put to flight and disperse his sable brethren; while the raven seemed to enjoy the fright he had occasioned.

In the year 1785, a gentleman going into the Red Lion Inn, at Hungerford, his chaise ran over, and sorely bruised the leg of his Newfoundland dog. Whilst examining the injury, and bathing the wound, a raven which belonged to the people of the house, attended, and was, apparently, a much concerned spectator. The dog's leg being dressed, he was tied up in the manger, where Ralph not only immediately visited him, but brought him bones, and attended him with repeated marks of attention. The bird's notice of the dog was so very extraordinary, that the gentleman questioned the hostler concerning the affair; who informed him, that the raven had been bred from his pin-feather in intimacy with a dog; and that the affection was mutual. Ralph's poor dog, by some accident, had also got his leg broken; and during the long time he was confined, his friend waited upon him, constantly carrying him provisions, and scarcely ever quitting him.

One night, by accident, the hostler had shut the stable-door, and Ralph was deprived of the company of his friend the whole night; but the hostler found, in the morning, the bottom of the door so pecked, that had it not been opened, Ralph would in another hour have made himself an entrance. The gentleman then inquired of the people of the house, who confirmed the above account, with several other traits of kindness which this bird had shown to all dogs in general; but particularly to maimed or wounded ones.

and impudent, he goes every where ; affronts and drives off the dogs, plays his pranks on the poultry, and is particularly assiduous in cultivating the good will of the cook-maid, who seems to be the favourite of the family. But then, with the amusing qualities of a favourite, he often also has the vices and defects. He is a glutton by nature, and a thief by habit. He does not confine himself to petty depredations on the pantry or the larder ; he soars at more magnificent plunder ; at spoils that he can neither exhibit nor enjoy ; but which, like a miser, he rests satisfied with having the satisfaction of sometimes visiting and contemplating in secret. A piece of money, a tea-spoon, or a ring, are always tempting baits to his avarice ; these he will slyly seize upon, and, if not watched, will carry to his favourite hole.

In his wild state, the raven is an active and greedy plunderer. Nothing comes amiss to him ; whether his prey be living or long dead it is all the same, he falls to with a voracious appetite ; and, when he has gorged himself, flies to acquaint his fellows, that they may participate of the spoil. If the carcass be already in the possession of some more powerful animal, a wolf a fox, or a dog, the raven sits at a little distance, content to continue an humble spectator till they have done. If in his flights he perceives no hopes of carrion, and his scent is so exquisite that he can smell it at a vast distance, he then contents himself with more unsavoury food, fruits, insects, and the accidental dessert of a dunghill.

This bird chiefly builds its nests in trees, and lays five or six eggs of a pale green colour, marked with small brownish spots. They live sometimes in pairs, and sometimes they frequent, in great numbers, the neighbourhood of populous cities, where they are useful in devouring those carcasses that would otherwise putrefy and infect the air. They build in high trees or old towers, in the beginning of March with us in England, and sometimes sooner, as the spring is more or less advanced for the season. But it is not always near towns that they fix their retreats ; they often build in unfrequented places, and drive all other birds from their vicinity. They will not permit even their young to keep in the same district, but drive them off when they are sufficiently able to shift for themselves. Martin, in his description of the Western Isles, avers, that there are three little islands among the number, which are occupied by a pair of ravens each, that drive off all other birds with great cries and impetuosity.

Notwithstanding the injury these birds do in picking out the eyes of sheep and lambs, when they find them sick and helpless, a vulgar respect is paid them, as being the birds that fed the prophet Elijah in the wilderness. This prepossession in favour of the raven is of very ancient date, as the Romans themselves, who thought the bird ominous, paid it, from motives of fear, the most profound veneration. One of these that had been kept in the temple of Castor, as Pliny informs us, flew down into the shop of a tailor, who took much delight in the visits of his new acquaintance. He taught the bird several tricks; but particularly to pronounce the names of the emperor Tiberius, and the whole royal family. The tailor was beginning to grow rich by those who came to see this wonderful raven, till an envious neighbour, displeased at the tailor's success, killed the bird, and deprived the tailor of his future hopes of fortune. The Romans, however, took the poor tailor's part; they punished the man who offered the injury, and gave the raven all the honours of a magnificent interment.

Birds in general live longer than quadrupeds; and the raven is said to be one of the most long-lived of the number. Hesiod asserts, that a raven will live nine times as long as a man; but though this is fabulous, it is certain that some of them have been known to live near a hundred years. This animal seems possessed of those qualities that generally produce longevity, a good appetite, and great exercise. In clear weather, the ravens fly in pairs to a great height, making a deep loud noise, different from that of their usual croaking.

The carrion-crow resembles the raven in its appetites, its laying, and manner of bringing up its young. It only differs in being less bold, less docile, and less favoured by mankind.*

* The crow, says Mr Wilson in his American Ornithology, is perhaps the most generally known, and least beloved, of all our land birds; having neither melody of song, nor beauty of plumage, nor excellence of flesh, nor civility of manners, to recommend him; on the contrary, he is branded as a thief and a plunderer; a kind of black-coated vagabond, who hovers over the fields of the industrious, fattening on their labours; and, by his voracity, often blasting their expectations. Hated as he is by the farmer, watched and persecuted by almost every bearer of a gun, who all triumph in his destruction, had not Heaven bestowed on him intelligence and sagacity far beyond common, there is reason to believe, that the whole tribe would long ago have ceased to exist.

It is in the month of May, and until the middle of June, that the crow is

The rook leads the way in another, but a more harmless train, that have no carnivorous appetites, but only feed upon insects and corn. The Royston (or hooded) crow is about the size of the two former. The breast, belly, back, and upper part of the

most destructive to the corn fields, digging up the newly planted grains of maize, pulling up by the roots those that have begun to vegetate, and thus frequently obliging the farmer to replant, or lose the benefit of the soil; and this sometimes twice, and even three times, occasioning a considerable additional expense, and inequality of harvest. No mercy is now shown him. The myriads of worms, moles, mice, caterpillars, grubs, and beetles, which he has destroyed, are altogether overlooked on these occasions. Detected in robbing the hens' nests, pulling up the corn, and killing the young chickens, he is considered as an outlaw, and sentenced to destruction. But the great difficulty is, how to put this sentence in execution. In vain the gunner skulks along the hedges and fences; his faithful sentinels, planted on some commanding point, raise the alarm, and disappoint vengeance of its object. The coast again clear, he returns once more in silence to finish the repast he had begun. Sometimes he approaches the farm house by stealth, in search of young chickens, which he is in the habit of snatching off, when he can elude the vigilance of the mother hen, which often proves too formidable for him. A few days ago, a crow was observed eagerly attempting to seize some young chickens in an orchard, near the room where I write; but these clustering close round the hen, she resolutely defended them, drove the crow into an apple tree, whither she instantly pursued him with such spirit and intrepidity, that he was glad to make a speedy retreat, and abandon his design.

The crow himself sometimes falls a prey to the superior strength and rapacity of the great owl, whose weapons of offence are by far the more formidable of the two.

Towards the close of summer, the parent crows, with their new families, forsaking their solitary lodgings, collect together, as if by previous agreement, when evening approaches. About an hour before sun-set, they are first observed, flying, somewhat in Indian file, in one direction, at a short height above the tops of the trees, silent and steady, keeping the general curvature of the ground, continuing to pass sometimes till after sun-set, so that the whole line of march would extend for many miles. This circumstance, so familiar and picturesque, has not been overlooked by the poets, in their descriptions of a rural evening. Burns, in a single line, has finely sketched it:

The blackening trains of crows to their repose.

The most noted crow roost that I am acquainted with is near Newcastle, on an island in the Delaware. It is there known by the name of the Pea Patch, and is a low flat alluvial spot, of a few acres, elevated but a little above high water mark, and covered with a thick growth of reeds. This appears to be the grand rendezvous, or head-quarters, of the greater part of the crows within forty or fifty miles of the spot. It is entirely destitute of trees, the crows alighting and nestling among the reeds, which by these means are broken down and matted together. The noise created by those

neck, being of a pale ash colour; the head and wings glossed over with a fine blue. He is a bird of passage, visiting this kingdom in the beginning of winter, and leaving it in the spring. He breeds, however, in different parts of the British dominions; and

multitudes, both in their evening assembly, and reascension in the morning, and the depredations they commit in the immediate neighbourhood of this great resort, are almost incredible. Whole fields of corn are sometimes laid waste by thousands alighting on it at once, with appetites whetted by the fast of the preceding night; and the utmost vigilance is unavailing to prevent, at least, a partial destruction of this their favourite grain. Like the stragglers of an immense, undisciplined, and rapacious army, they spread themselves over the fields, to plunder and destroy wherever they alight. It is here that the character of the crow is universally execrated; and to say to the man who has lost his crop of corn by these birds, that crows are exceedingly useful for destroying vermin, would be as consolatory as to tell him who had just lost his house and furniture by the flames, that fires are excellent for destroying bugs.

The strong attachment of the crows to this spot may be illustrated by the following circumstance: Some years ago, a sudden and violent northeast storm came on during the night, and the tide, rising to an uncommon height, inundated the whole island. The darkness of the night, the suddenness and violence of the storm, and the incessant torrents of rain that fell, it is supposed, so intimidated the crows, that they did not attempt to escape, and almost all perished. Thousands of them were next day seen floating in the river; and the wind, shifting to the northwest, drove their dead bodies to the Jersey side, where for miles they blackened the whole shore. This disaster, however, seems long ago to have been repaired; for they now congregate on the Pea Patch in as immense multitudes as ever.

Mr Knapp, in his Journal of a Naturalist, has taken a pleasing and favourable view of the rook.—Gesner (he says) has called the common rook (*corvis frugilegus*) a corn-eating bird. Linnæus has somewhat lightened this epithet by considering it only as a gatherer of corn; to neither of which names do I believe it entitled, as it appears to live solely upon grubs, various insects, and worms. It has at times great difficulty to support its life, and in a dry spring or summer most of these are hidden in the earth beyond its reach, except at those uncertain periods when the grub of the chaffer is to be found; and in a hot day we see the poor birds perambulating the fields, and wandering by the sides of the highways, seeking for and feeding upon grasshoppers, or any casual nourishment that may be found. At those times, was it not for its breakfast of dew worms, which it catches in the gray of the morning, as it is appointed the earliest of risers, it would commonly be famished. In the hot summer of 1825, many of the young brood of the season perished from want; the mornings were without dew, and consequently few or no worms were to be obtained; and we found them dead under the trees, having expired on their roostings. It was particularly distressing, for no relief could be given, to hear the constant clamour and importunity of the young for food. The old birds seemed to suffer without complaint; but the wants of their offspring were expressed by the unceasing cry of hunger, and pursuit of their parents for supply, and our fields

his nest is common enough in trees in Ireland. The jackdaw is black, like all the former, but ash-coloured on the breast and belly. He is not above the size of a pigeon. He is docile and loquacious. His head is large for the size of his body, which,

were scenes of daily restlessness and lament. Yet, amid all this distress, it was pleasing to observe the perseverance of the old birds in the endeavour to relieve their famishing families, as many of them remained out searching for food quite in the dusk, and returning to their roosts long after the usual period for retiring. In this extremity it becomes a plunderer, to which by inclination it is not much addicted, and resorts to our newly-set potato fields, digging out the cuttings. Ranks are seen sadly defective, the result of its labours, I fear; and the request of my neighbours now and then for a bird from my rookery, to hang up in *terrorem* in their fields, is confirmatory of its bad name. In autumn a ripe pear, or a walnut, becomes an irresistible temptation, and it will occasionally obtain a good share of these fruits. In hard frost it is pinched again, visits for food the banks of streams, and in conjunction with its congener, the "villain crow," becomes a wayfaring bird, and "seeks a dole from every passing steed."* Its life, however, is not always dark and sombre; it has its periods of festivity also. When the waters retire from meadows and low lands, where they have remained any time, a luxurious banquet is provided for this corvus, in the multitude of worms which it finds drowned on them. But its jubilee is the season of the cockchaffer (*melolantha vulgaris*), when every little copse, every oak, becomes animated with it and all its noisy, joyful family feeding and scrambling for the insect food. The power or faculty, be it by the scent, or by other means, that rooks possess of discovering their food, is very remarkable. I have often observed them alight on a pasture of uniform verdure, and exhibiting no sensible appearance of withering or decay, and immediately commence stocking up the ground. Upon investigating the object of their operations, I have found many heads of plantains, the little autumnal dandelions, and other plants, drawn out of the ground and scattered about, their roots having been eaten off by a grub, leaving only a crown of leaves upon the surface. This grub beneath, in the earth, the rooks had detected in their flight, and descended to feed on it, first pulling up the plant which concealed it, and then drawing the larvæ from their holes. By what intimation this bird had discovered its hidden food we are at a loss to conjecture; but the rook has always been supposed to scent matters with great discrimination.

It is but simple justice to these often-censured birds, to mention the service that they at times perform for us in our pasture lands. There is no plant that I endeavour to root out with more persistency in these places than the turfy hair-grass (*aira cæspitosa*). It abounds in all the colder parts of our grass lands, increasing greatly when undisturbed, and, worthless itself, overpowers its more valuable neighbours. The larger turfs we pretty

* During the unusually severe winter of 1829-30, our rooks became certainly "corn-eaters." the ground was bound down by the frost, and their favourite food hidden by the snow. They fixed themselves, by dozens, on the oat-ricks out in the fields - and the late sown, just germinating wheat was dug up from the soil to a very injurious extent, by our half-famished birds; but they appeared to return to their common food upon the relenting of the frost.

as has been remarked, argues him ingenious and crafty. He builds in steeples, old castles, and high rocks, laying five or six eggs in a season. The Cornish chough is like a jackdaw, but bigger, and almost the size of a crow. The bill, feet, and legs, are long like those of a jackdaw, but of a red colour; and the plumage is black all over. It frequents rocks, old castles, and churches by the sea side, like the daw; and with the same noisy assiduity. It is only seen along the western coasts of England. These are birds very similar in their manners, feeding on grain

well get rid of; but multitudes of small roots are so interwoven with the pasture herbage, that we cannot separate them without injury; and these our persevering rooks stock up for us in such quantities, that in some seasons the fields are strewn with the eradicated plants. The whole so torn up does not exclusively prove to be the hair-grass, but infinitely the larger portion consists of this injurious plant. The object of the bird in performing this service for us, is to obtain the larvæ of several species of insects, underground feeders, that prey on the roots, as Linnæus long ago observed upon the subject of the little nard grass (*nardus stricta*). This benefit is partly a joint operation: the grub eats the root, but not often so effectually as to destroy the plant, which easily roots itself anew; but the rook finishes the affair by pulling it up to get at the larvæ, and thus prevents all vegetation; nor do I believe that the bird ever removes a specimen that has not already been eaten, or commenced upon, by the caterpillar.

The rook entices its young from the breeding trees, as soon as they can flutter to any other. These young, for a few evenings after their flight, will return with their parents, and roost where they were bred; but they soon quit their abode, and remain absent the whole of the summer months. As soon, however, as the heat of summer is subdued, and the air of autumn felt, they return and visit their forsaken habitations, and some few of them even commence the repair of their shattered nests; but this meeting is very differently conducted from that in the spring; their voices have now a mellowness approaching to musical, with little admixture of that harsh and noisy contention, so distracting at the former season, and seems more like a grave consultation upon future procedure; and as winter approaches they depart for some other place. The object of this meeting is unknown; nor are we aware that any other bird revisits the nest it has once forsaken. Domestic fowls, indeed, make use again of their old nests; but this is never, or only occasionally done by birds in a wild state. The daw and rock pigeon will build in society with their separate kindred; and the former even revisits in autumn the places it had nested in. But such situations as these birds require, the ruined castle, abbey, or church tower, ledge in the rock, &c., are not universally found, and are apparently occupied from necessity. The rooks appear to associate from preference to society, as trees are common every where; but what motive they can have in view in lingering thus for a few autumnal mornings, and counselling with each other around their abandoned and now useless nests, which before the return of spring are generally beaten from the trees, is by no means manifest to us.

and insects, living in society, and often suffering general castigation from the flock for the good of the community.

The rook, as is well known, builds in woods and forests in the neighbourhood of man, and sometimes makes choice of groves in the very midst of cities for the place of its retreat and security. In these it establishes a kind of legal constitution, by which all intruders are excluded from coming to live among them, and none suffered to build but acknowledged natives of the place. I have often amused myself with observing their plan of policy from my window in the Temple, that looks upon a grove where they have made a colony in the midst of the city. At the commencement of spring, the rookery, which during the continuance of winter seemed to have been deserted, or only guarded by about five or six, like old soldiers in a garrison, now begins to be once more frequented; and in a short time all the bustle and hurry of business is fairly commenced. Where these numbers resided during the winter is not easy to guess; perhaps in the trees of hedge-rows, to be nearer their food. In spring, however, they cultivate their native trees; and, in the places where they were themselves hatched, they prepare to propagate a future progeny.*

* A large colony of rooks had subsisted many years in a grove on the banks of the river Irwell, near Manchester. One serene evening, says Dr Percival, I placed myself within the view of it, and marked with attention the various labours, pastimes, and evolutions of this crowded society. The idle members amused themselves with chasing each other through endless mazes; and in their flight, they made the air resound with an infinitude of discordant voices. In the midst of these playful exertions, it unfortunately happened that one rook struck his beak against the wing of another. The sufferer instantly fell into the river. A general cry of distress ensued; the birds hovered, with every expression of anxiety, over their distressed companion. Animated by their sympathy, and perhaps by the language of counsel known to themselves, he sprang into the air, and, by one strong effort, reached the point of a rock which projected over the water. Their joy became loud and universal; but, alas! it soon changed into notes of lamentation; for the poor wounded bird, in attempting to fly toward his nest, dropped again into the river, and was drowned, amidst the moans of the whole fraternity.

In the year 1783, a pair of rooks, after an unsuccessful endeavour to establish themselves in a rookery, at no great distance from the Royal Exchange of Newcastle, were compelled to abandon the attempt, and take refuge in the spire of that building; and although constantly interrupted by other rooks, they built their nest on the *top of the spire*, and reared their young, undisturbed by the noise of the populace below them: the nest and its in-

They keep together in pairs ; and when the offices of courtship are over, they prepare for making their nests and laying. The old inhabitants of the place are already provided ; the nest which served them for years before, with a little trimming and dressing, will serve very well again ; the difficulty of nestling lies only upon the young ones, who have no nest, and must therefore get up one as well as they can. But not only the materials are wanting, but also the place in which to fix it. Every part of a tree will not do for this purpose, as some branches may not be sufficiently forked ; others may not be sufficiently strong ; and still others may be too much exposed to the rockings of the wind. The male and female upon this occasion are, for some days, seen examining all the trees of the grove very attentively ; and when they have fixed upon a branch that seems fit for their purpose, they continue to sit upon and observe it very sedulously for two or three days longer. The place being thus determined upon, they begin to gather the materials for their nest ; such as sticks and fibrous roots, which they regularly dispose in the most substantial manner. But here a new and unexpected obstacle arises. It often happens that the young couple have

habitants were of course turned about by every change of the wind. They returned and built their nest every year on the same place, till the year 1793 ; soon after which the spire was taken down. A small copper-plate was engraved, the size of a watch-paper, with a representation of the top of the spire, and the nest ; and so much pleased were the inhabitants and other persons with it, that as many copies were sold as produced the engraver the sum of ten pounds.

A remarkable circumstance respecting these birds occurred, some years ago, at Dallam Tower, in Westmoreland, the seat of Daniel Wilson, Esq. There were two groves adjoining to the park ; one of which had for many years been the resort of a number of herons, that regularly every year built and bred there : in the other was a very large rookery. For a long time the two tribes had lived peaceably together. At length, in the spring of 1775, the trees of the heronry were cut down, and the young brood perished by the fall of the timber. The parent birds, not willing to be driven from the place, endeavoured to effect a settlement in the rookery. The rooks made an obstinate resistance ; but after a desperate contest, in the course of which many of the rooks and some of the herons lost their lives, the latter at length succeeded in obtaining possession of some of the trees, and that very spring built their nests afresh. The next season a similar contest took place, which, like the former, terminated by the victory of the herons. After that time peace seemed to be agreed upon between them. The rooks relinquished part of the grove to the herons, to which part alone they confined themselves ; and the two communities appeared to live together in as much harmony as they did before the dispute.

made choice of a place too near the mansion of an older pair, who do not choose to be incommoded by such troublesome neighbours. A quarrel therefore instantly ensues, in which the old ones are always victorious.

The young couple, thus expelled, are obliged again to go through the fatigues of deliberating, examining, and choosing; and having taken care to keep their due distance, the nest begins again, and their industry deserves commendation. But their alacrity is often too great in the beginning; they soon grow weary of bringing the materials of their nest from distant places; and they very easily perceive that sticks may be provided nearer home, with less honesty, indeed, but some degree of address. Away they go, therefore, to pilfer, as fast as they can; and whenever they see a nest unguarded, they take care to rob it of the very choicest sticks of which it is composed. But these thefts never go unpunished; and probably upon complaint being made there is a general punishment inflicted. I have seen eight or ten rooks come upon such occasions, and, setting upon the new nest of the young couple all at once, tear it in pieces in a moment.

At length, therefore, the young pair find the necessity of going more regularly and honestly to work. While one flies to fetch the materials, the other sits upon the tree to guard it; and thus in the space of three or four days, with a skirmish now and then between, the pair have fitted up a commodious nest, composed of sticks without, and of fibrous roots and long grass within. From the instant the female begins to lay, all hostilities are at an end; not one of the whole grove, that a little before treated her so rudely, will now venture to molest her; so that she brings forth her brood with patient tranquillity. Such is the severity with which even native rooks are treated by each other; but if a foreign rook should attempt to make himself a denizen of their society, he would meet with no favour; the whole grove would at once be up in arms against him, and expel him without mercy.

In some countries these birds are considered as a benefit, in others as a nuisance: their chief food is the worm of the dor-beetle, and corn; thus they may be said to do as much service by destroying that noxious insect, as they do injury by consuming the produce of the husbandman's industry.

To this tribe of the crow-kind, some foreign sorts might be added: I will take notice only of one, which, from the extraordinary size and fashion of its bill, must not be passed in silence.* This is the Calao, or horned Indian raven, which exceeds the common raven in size, and habits of depredation. But what he differs in from all other birds is the beak, which by its length and curvature at the end, appears designed for rapine; but then it has a kind of horn standing out from the top, which looks somewhat like a second bill, and gives this bird, otherwise fierce and ugly, a very formidable appearance. The horn springs out of the forehead, and grows to the upper part of the bill, being of great bulk; so that near the forehead it is four inches broad, not unlike the horn of the rhinoceros, but more crooked at the tip. Were the body of the bird answerable in size to the head, the calao would exceed in magnitude even the vulture or the eagle. But the head and beak are out of all proportion, the body being not much larger than that of a hen. Yet even here there are varieties; for in such of those birds as come from different parts of Africa, the body is proportionable to the beak; in such as come from the Molucca Islands, the beak bears no proportion to the body. Of what use this extraordinary excrescence is to the bird, is not easy to determine; it lives, like others of its kind, upon carrion, and seldom has a living enemy to cope with: Nature seems to sport in the production of many animals, as if she were willing to exhibit instances as well of variety as economy in their formation.

CHAP. III.

OF THE MAGPIE, AND ITS AFFINITIES.

THERE are such a variety of birds that may be distributed under this head, that we must not expect very precise ideas of any. To have a straight strong bill, legs formed for hopping, a body of about the size of a magpie, and party-coloured plumage,

* There are also the *Fish Crow*, which lives on dead fish and other garbage by the river and sea shore, and *Clark's Crow*, which resembles somewhat the Jackdaw, both described by Wilson in his Ornithology.

are the only marks by which I must be contented to distinguish this numerous fantastic tribe, that add to the beauty, though not to the harmony, of our landscapes. In fact, their chattering every where disturbs the melody of the lesser warblers; and their noisy courtship not a little damps the song of the linnet and the nightingale.

However, we have very few of this kind in our woods compared to those in the neighbourhood of the line. There they not only paint the scene with the beauty and the variety of their plumage, but stun the ear with their vociferation. In those luxurious forests, the singing-birds are scarcely ever heard, but a hundred varieties of the pie, the jay, the roller, the chatterer, and the toucan, are continually in motion, and with their illusive mockeries disturb or divert the spectator, as he happens to be disposed.

The Magpie is the chief of this kind with us, and is too well known to need a description. Indeed, were its other accomplishments equal to its beauty, few birds could be put in competition. Its black, its white, its green, and purple, with the rich and gilded combination of the glosses on its tail, are as fine as any that adorn the most beautiful of the feathered tribe. But it has too many of the qualities of a beau to depreciate these natural perfections: vain, restless, loud, and quarrelsome, it is an unwelcome intruder every where; and never misses an opportunity, when it finds one, of doing mischief.

The magpie bears a great resemblance to the butcher-bird in its bill, which has a sharp process near the end of the upper chap, as well as in the shortness of its wings, and the form of the tail; each feather shortening from the two middlemost. But it agrees still more in its food, living not only upon worms and insects, but also upon small birds when they can be seized. A wounded lark, or a young chicken separated from the hen, are sure plunder; and the magpie will even sometimes set upon and strike a blackbird.

The same insolence prompts it to tease the largest animals, when its insults can be offered with security. They often are seen perched upon the back of an ox or a sheep, pecking up the insects to be found there, chattering, and tormenting the poor animal at the same time, and stretching out their necks for combat, if the beast turns its head backward to reprehend him. They

seek out also the nests of birds : and, if the parent escapes, the eggs make up for the deficiency : the thrush and the blackbird are but too frequently robbed by this assassin, and this, in some measure, causes their scarcity.

No food seems to come amiss to this bird ; it shares with ravens in their carrion, with rooks in their grain, and with the euckoo in birds' eggs : but it seems possessed of a providence seldom usual with gluttons ; for when it is satisfied for the present, it lays up the remainder of the feast for another occasion. It will even in a tame state hide its food when it has done eating, and after a time return to the secret hoard with renewed appetite and vociferation.

In all its habits it discovers a degree of instinct unusual to other birds. Its nest is not less remarkable for the manner in which it is composed, than for the place the magpie takes to build it in.* The nest is usually placed conspicuous enough,

* Amongst our larger birds, (says Mr Rennie on the Architecture of Birds,) the magpie excels all her congeners in architectural skill. Several of the older naturalists were inclined to attribute to her more ingenuity than facts will corroborate. Albertus Magnus, for example, says she not only constructs two passages for her nest, one for entering and another for going out, but frequently makes two nests on contiguous trees, with the design of misleading plunderers, who may as readily choose the empty nest as the one containing the eggs, on the same principle that Dionysius the tyrant had thirty sleeping-rooms. Others maintain that the opening opposite the passage is for the tail of the mother-magpie when hatching. Before speculating upon the use of this, it would have been well to ascertain its existence ; for among the numerous magpies' nests which we have seen (two very perfect ones are now before us) the alleged second opening is by no means apparent, though in some instances the twigs may appear more loosely woven than in others, but seldom so much so, we think, as to permit a passage to the bird.

There is considerable discrepancy in the accounts given by naturalists of the haunts of the magpie. "The tall tangled hedge-row," says Mr Knapp, "the fir grove, or the old well-wooded inclosure constitutes its delight, as there alone its large dark nest has any chance of escaping observation." It "always," says Jennings, "builds a solitary nest either in a thorn bush or on some lofty elm, and sometimes on an apple-tree : it does not often build very near dwelling houses, but a remarkable exception to this has lately occurred in Somersetshire, at Huntspill, a magpie not only having built its nest on a tree a very short distance from a dwelling-house, but it occupied the same nest two years successively "

Wilson, on the other hand, speaking, we apprehend, of its habits in Scotland as well as in America, says it "generally selects a tall tree adjoining the farm-house for its nest, which is placed amongst the highest branches."

either in the middle of some hawthorn-bush, or on the top of some high tree. The place, however, is always found difficult of access; for the tree pitched upon usually grows in some thick hedge-row fenced by brambles at the root; or sometimes one of the higher bushes is fixed upon for the purpose. When the place is thus chosen as inaccessible as possible to men, the next care is to fence the nest above so as to defend it from all the various enemies of air. The kite, the crow, and the sparrowhawk, are to be guarded against; as their nests have been sometimes plundered by the magpie, so it is reasonably feared that they will take the first opportunity to retaliate. To prevent this, the magpie's nest is built with surprising labour and ingenuity.

The body of the nest is composed of hawthorn branches, the thorns sticking outward, but well united together by their mutual insertions. Within it is lined with fibrous roots, wool, and long grass, and then nicely plastered all round with mud and clay. The body of the nest being thus made firm and commodious, the next work is to make the canopy which is to defend it above. This is composed of the sharpest thorns, wove together in such a manner as to deny all entrance except at the door, which is just large enough to permit egress and regress to the owners. In this fortress the male and female hatch and bring up their brood with security, sheltered from all attacks but those of the climbing school-boy, who often finds his torn and bloody hands too dear a price for the eggs or the young ones. The magpie lays six or seven eggs, of a pale green colour, spotted with brown.

This bird, in its domestic state, preserves its natural character

Another writer says "it nestles in the tall hedge, or in a thick tree near the cottage:" "it is no bird of the wilderness." This agrees with our own observations; for we have remarked the magpie to be no less partial to human neighbourhood than its congener the rook, and, so far from sequestering itself, though it is certainly a shy and wary bird, we have seldom met with it except near farmhouses. In the north, almost every farm has its denizen pair of magpies, which incubate in their hereditary nest on the old ash tree year after year, precisely like an hereditary colony of rooks. In the more closely-wooded districts of the south, indeed, it does not so frequently build on the trees in the farm-yard; yet we observed, in 1830, a magpie's nest in such a locality on the borders of Epping Forest, near Chigwell, and another in a clump of elms about a hundred yards from Sion House, the seat of the Duke of Northumberland.

with strict propriety. The same noisy mischievous habits attend it to the cage that marked it in the woods ; and being more cunning, so it is also a more docile bird than any other taken into keeping. Those who are desirous of teaching it to speak have a foolish custom of cutting its tongue, which only puts the poor animal to pain, without improving its speech in the smallest degree. Its speaking is sometimes very distinct ; but its sounds are too thin and sharp to be an exact imitation of the human voice, which the hoarse raven and parrot can counterfeit more exactly.*

* A bell founder, in the parish of Saint Jean en Greve, at Paris, having lost from time to time several silver spoons, and other articles of value, at length suspected his servant-maid to be the thief ; and in order to satisfy himself, and to detect her, if possible, he laid a couple of silver trinkets in an apartment to which himself, his wife, and the said servant, were the only persons who had access. On the following day the trinkets were missing, and suspicion of course fell on the maid. The master questioned her, as to her having been in the room ; the girl hesitated for some moments, and then in a faltering tone of voice, said she remembered to have opened the door of that room to admit the air, but had seen nothing of the things lost. This reply seemed to confirm her master more in his opinion of her guilt ; he accordingly had her taken up on suspicion, and she was fully committed for trial.

After the usual ceremonies of the trial, in which the passions and prejudices of the judges and accusers, but too frequently usurp the seat of impartial investigation, she was found guilty of the alleged crime, and suffered death accordingly. Some time afterwards, the bell-founder was sent for to arrange and repair the church bells ; and on entering the steeple, to examine the same, he was much surprised to find a favourite magpie he had kept about his house, perched up near the church clock. Struck with the appearance of his old inmate in so uncommon a place, he could hardly believe it to be the same ; to satisfy himself, he therefore called the bird by its name, Mag ! Mag ! The bird then hopped a few paces towards the man, stopped suddenly, ruffled up his plumage, chattered in his way, and then fled away to a hole in the roof. Curiosity led the man to follow it ; but what words can express his astonishment and confusion, when he beheld deposited in a corner of the hole, the very identical articles for which the poor unfortunate girl lost her life, with several others he had missed at different times.

The whole of this extraordinary affair was soon publicly known. The people, in a paroxysm of enthusiastic zeal, threatened vengeance on the girl's accusers and judges ; and to prevent those serious consequences so much apprehended, it was found necessary to appease the multitude, by an order that mass should be said, and a solemn *Domine exaude* offered up, for the peace of her soul, in the church of St Jean en Greve ; where this tragedy is recorded, and where the virgins of the surrounding neighbourhood repair annually at midnight, dressed in robes of the whitest lawn, and bearing each a branch of cypress, to sing a requiem, and to implore the divine pro-

'To this tribe we may refer the jay, which is one of the most beautiful of the British birds. The forehead is white, streaked with black; the head is covered with very long feathers, which it can erect into a crest at pleasure; the whole neck, back, breast, and belly, are of a faint purple, dashed with grey; the wings are most beautifully barred with a lovely blue, black, and white; the tail is black, and the feet of a pale brown. Like the magpie, it feeds upon fruits, will kill small birds, and is extremely docile.*

tection for the innocent sufferer. This ceremony is still commemorated, and is called "the mass of the magpie." A popular drama, called "The Maid and Magpie," is founded on this incident.

In most countries the magpie is esteemed a bird of omen. In various parts of Scotland and the north of England, if one of these birds is observed flying by itself, it is accounted by the vulgar a sign of ill luck; if there are two together, they forebode something fortunate; three indicate a funeral, and four a wedding.

* The *Jays* differ from the *pies* principally in the bill, which is more hooked, and in having some long loose feathers on the crown of the head, which are erected when the birds are excited; the tail, moreover, in these birds, is longer and more graduated. They may almost be said to be omnivorous, living in general in the woods, but occasionally resorting to gardens and cultivated lands, to both of which they are injurious and destructive, as well by what they eat at the time, as by what they carry off to increase their hidden stores. In summer they live in pairs, but in the opposite season assemble in small groups. They advance on the ground always by leaps, and seldom or never walk. In disposition they are very irascible, petulant, and inquisitive, and take their scientific generic name, *garrulus*, from their constant loquacity. The nest is built in trees, generally at about half-way from the bottom, of sticks, interlaced together on the outside, cased within with mud, and lined with dry grass and fibres: the entrance to it is at the side. The eggs are white, spotted with brown and grey, and are from six to eight in number.

The common jay does not seem to be very generally or exclusively located, and is partially migratory from the west and northern parts of Europe to the south east, as the islands of the Grecian Archipelago, and also Egypt, Syria, &c. Though many are thus said to migrate, it is nevertheless clear that some continue in our own country and in France the whole year.

The *Red-Billed Jay* is a very splendid bird. The bill and feet are red; the neck and breast are black; the crown of the head dotted black and white; body, above and beneath, ashen; of the tail feathers, the two intermediate are much the longest, and the lateral feathers are graduated; they are blue, tipped with white, and a black bar between that colour and the blue. Inhabits China, and is frequently rendered very tame and amusing. Of the *Blue Jay*, an inhabitant of North America, Wilson has given the following interesting account.

"The blue jay is an almost universal inhabitant of the woods, frequenting the thickest settlements as well as the deepest recesses of the forest, where

The Chatterer also, which is a native of Germany, may be placed in this rank ; and is somewhat less than the former. It is variegated with a beautiful mixture of colours ; red, ash-colour, chestnut, and yellow ; but what distinguishes it from all

his squalling voice often alarms the deer, to the disappointment and mortification of the hunter,—one of whom informed me that he made it a point, in summer, to kill every jay he could meet with. In the charming season of spring, when every thicket pours forth harmony, the part performed by the jay always catches the ear. He appears to be among his fellow musicians what the trumpeter is in a band, some of his notes having no distant resemblance to the tones of that instrument. These he has the faculty of changing through a great variety of modulations, according to the particular humour he happens to be in. When disposed for ridicule, there is scarce a bird whose peculiarities of song he cannot tune his notes to. When engaged in the blandishments of love, they resemble the soft chatterings of a duck, and, while he nestles among the thick branches of the cedar, are scarce heard at a few paces distance : but he no sooner discovers your approach than he sets up a vehement outcry, flying off, and screaming with all his might, as if he called the whole feathered tribe of the neighbourhood to witness some outrageous usage he had received. When he hops undisturbed among the high branches of the oak and hickory, they become soft and musical ; and his calls for the female a stranger would mistake for the repeated squeakings of an ungreased wheel-barrow. All these he accompanies with various nods, and jerks, and other gesticulations, for which the whole tribe of jays are so remarkable, that, with some other peculiarities, they might have very well justified the great Swedish naturalist in forming them into a separate genus by themselves.

“ The blue jay builds a large nest, frequently in the cedar, sometimes on an apple-tree, lines it with dry fibrous roots, and lays five eggs of a dull olive, spotted with brown. The male is particularly careful of not being heard near the place, making his visits as silently and secretly as possible. His favourite food is chestnuts, acorns, and Indian corn. He occasionally feeds on bugs and caterpillars, and sometimes pays a plundering visit to the orchard, cherry rows, and potato patch ; and has been known, in times of scarcity, to venture into the barn, through openings between the weather boards. In these cases he is extremely active and silent, and, if surprised in the fact, makes his escape with precipitation, but without noise, as if conscious of his criminality.

“ Of all birds he is the most bitter enemy to the owl. No sooner has he discovered the retreat of one of these, than he summons the whole feathered fraternity to his assistance, who surround the glimmering *solitaire*, and attack him from all sides, raising such a shout as may be heard, in a still day, more than half a mile off. When, in my hunting excursions, I have passed near this scene of tumult, I have imagined to myself that I heard the insulting party venting their respective charges with all the virulence of a Billingsgate mob ; the owl, meanwhile, returning every compliment with a broad oggling stare. The war becomes louder and louder, and the owl at length, forced to betake himself to flight, is followed by his whole *troupe* of persocutors, until driven beyond the boundaries of their jurisdiction.

other birds, are the horny appendages from the tips of seven of the lesser quill feathers, which stand bare of beards, and have the colour and gloss of the best red sealing-wax.

The Roller is not less beautiful than any of the former. The

“But the blue jay himself is not guiltless of similar depredations with the owl, and becomes in his turn the very tyrant he detested, when he sneaks through the woods, as he frequently does, and among the thickets and hedge-rows, plundering every nest he can find of its eggs, tearing up the callow young by piecemeal, and spreading alarm and sorrow around him. The cries of the distressed parents soon bring together a number of interested spectators (for birds in such circumstances seem truly to sympathise with each other,) and he is sometimes attacked with such spirit as to be under the necessity of making a speedy retreat.

“He will sometimes assault small birds, with the intention of killing and devouring them: an instance of which I myself once witnessed, over a piece of woods near the borders of Schuylkill; where I saw him engaged for more than five minutes pursuing what I took to be a species of motacilla (*m. maculosa*, yellow rump,) wheeling, darting, and doubling in the air, and, at last, to my great satisfaction, got disappointed in the escape of his intended prey. In times of great extremity, when his hoard or magazine is frozen up, buried in snow, or perhaps exhausted, he becomes very voracious, and will make a meal of whatever carrion or other animal substance comes in the way, and has been found regaling himself on the bowels of a robin (*turdus migratorius*) in less than five minutes after it was shot.

“There are, however, individual exceptions to this general character for plunder and outrage, a proneness for which is probably often occasioned by the wants and irritations of necessity. A blue jay, which I have kept for some time, and with which I am on terms of familiarity, is in reality a very notable example of mildness of disposition and sociability of manners. An accident in the woods first put me in possession of this bird, while in full plumage, and in high health and spirits; I carried him home with me, and put him into a cage already occupied by a golden-winged woodpecker (*picus auratus*,) where he was saluted with such rudeness, and received such a drubbing from the lord of the manor, for entering his premises, that, to save his life, I was obliged to take him out again. I then put him into another cage, where the only tenant was a female *oriclus spurius* (bastard baltimore.) She also put on airs of alarm, as if she considered herself endangered and insulted by the intrusion; the jay, meanwhile, sat mute and motionless on the bottom of the cage, either dubious of his own situation, or willing to allow time for the fears of his neighbour to subside. Accordingly, in a few minutes, after displaying various threatening gestures (like some of those Indians we read of in their first interviews with the whites), she began to make her approaches, but with great circumspection, and readiness for retreat. Seeing, however, the jay begin to pick up some crumbs of broken chestnuts, in an humble and peaceable way, she also descended, and began to do the same; but, at the slightest motion of her new guest, wheeled round, and put herself on the defensive. All this ceremonious jealousy vanished before evening; and they now roost together, feed, and play together, in perfect harmony and good humour. When the jay goes to drink, his mess-

breast and belly are blue ; the head green ; and the wings variegated with blue, black, and white. But it may be distinguished from all others by a sort of naked tubercles or warts near the eyes, which still farther contribute to increase its beauty.

To this class may be added a numerous list from all the tropical forests of the east and west ; where the birds are remarkable for discordant voices and brilliant plumage. I will fix only upon one, which is the most singular of all the feathered creation. This is the Toucan, a bird of the pie kind, whose bill is nearly as large as the rest of its whole body.

Of this extraordinary bird there are four or five varieties. I will only describe the red-beaked toucan ; and as the figure of this bird makes the principal part of its history, I will follow Edwards through all the minutiae of its singular conformation. It is about the size of, and shaped like a jackdaw, with a large head to support its monstrous bill ; this bill, from the angles of the mouth to its point, is six inches and a half ; and its breadth, in the thickest part, is a little more than two. Its thickness near the head, is one inch and a quarter ; and it is a little rounded

mate very impudently jumps into the saucer to wash herself, throwing the water in showers over her companion, who bears it all patiently ; venturing now and then to take a sip between every splash, without betraying the smallest token of irritation. On the contrary, he seems to take pleasure in his little fellow-prisoner, allowing her to pick (which she does very gently) about his whiskers, and to clean his claws from the minute fragments of chestnuts which happen to adhere to them. This attachment on the one part, and mild condescension on the other, may perhaps, be partly the effect of mutual misfortunes, which are found not only to knit mankind, but many species of inferior animals, more closely together : and shows that the disposition of the blue jay may be humanized, and rendered susceptible of affectionate impressions, even for those birds which, in a state of nature, he would have no hesitation in making a meal of.

He is not only bold and vociferous, but possesses a considerable talent for mimicry, and seems to enjoy great satisfaction in mocking and teasing other birds, particularly the little hawk (*f. Sparverius*), imitating his cry whenever he sees him, and squealing out as if caught : this soon brings a number of his own tribe around him, who all join in the frolic, darting about the hawk, and feigning the cries of a bird sorely wounded, and already under the clutches of its devourer ; while others lie concealed in bushes, ready to second their associates in the attack. But this ludicrous farce often terminates tragically. The hawk, singling out one of the most insolent and provoking, sweeps upon him in the unguarded moment, and offers him up a sacrifice to his hunger and resentment. In an instant the tune is changed : all their buffoonery vanishes, and loud and incessant screams proclaim their disaster.

along the top of the upper chap, the under side being round also; the whole of the bill is extremely slight, and a little thicker than parchment. The upper chap is of a bright yellow, except on each side, which is of a fine scarlet colour; as is also the lower chap, except at the base, which is purple. Between the head and the bill there is a black line of separation all round the base of the bill; in the upper part of which the nostrils are placed, and are almost covered with feathers; which has occasioned some writers to say, that the toucan has no nostrils. Round the eyes, on each side of the head, is a space of bluish skin, void of feathers, above which the head is black, except a white spot on each side joining to the base of the upper chap. The hinder part of the neck, the back, wings, tail, belly, and thighs, are black. The under side of the head, throat, and the beginning of the breast are white. Between the white on the breast, and the black on the belly, is a space of red feathers, in the form of a new moon, with its horns upwards. The legs, feet, and claws, are of an ash-colour; and the toes stand like those of the parrot, two before, and two behind.

It is reported, by travellers, that this bird, though furnished with so formidable a beak is harmless and gentle, being so easily made tame as to sit and hatch its young in houses.* It feeds chiefly upon pepper, which it devours very greedily, gorging itself in such a manner that it voids it crude and uncooked. This, however, is no objection to the natives from using it again: they even prefer it before that pepper which is fresh gathered from the tree: and seem persuaded that the strength and heat of the pepper is qualified by the bird, and that all its noxious qualities are thus exhausted.

Whatever be the truth of this report, nothing is more certain than that the toucan lives only upon a vegetable diet; and in a domestic state, to which it is frequently brought in the warm countries where it is bred, it is seen to prefer such food to all other. Pozzo, who bred one tame, asserts, that it leaped up and down, wagged the tail, and cried with a voice resembling that of a magpie. It fed upon the same things that parrots do; but was most greedy of grapes, which, being plucked off one by one, and

* The toucans, according to M. D'Azara, destroy a great number of birds, their large bill rendering them formidable to most species. They attack them in their nests, and devour their eggs and young ones.

thrown into the air, it would most dexterously catch before they fell to the ground. Its bill, he adds, was hollow, and upon that account very light, so that it had but little strength in so apparently formidable a weapon; nor could it peck or strike smartly therewith. But its tongue seemed to assist the efforts of this unwieldy machine; it was long, thin, and flat, not unlike one of the feathers on the neck of a dunghill-cock; this it moved up and down, and often extended five or six inches from the bill. It was of a flesh colour, and very remarkably fringed on each side with very small filaments, exactly resembling a feather.

It is probable that this long tongue has greater strength than the thin hollow beak that contains it. It is likely that the beak is only a kind of sheath for this peculiar instrument, used by the toucan, not only in making itself a nest, but also in obtaining its provision. Nothing is more certain, than that this bird builds its nest in holes of trees, which have been previously scooped out for this purpose; and it is not very likely that so feeble a bill could be very serviceable in working upon such hard materials.

Be this as it will, there is no bird secures its young better from external injury than the toucan. It has not only birds, men, and serpents, to guard against, but a numerous tribe of monkeys, still more prying, mischievous, and hungry, than all the rest. The toucan, however, scoops out its nest in the hollow of some trees, leaving only a hole large enough to go in and out at. There it sits, with its great beak, guarding the entrance, and if the monkey venture to offer a visit of curiosity, the toucan gives him such a welcome, that he presently thinks proper to pack off, and is glad to escape with safety.

This bird is only found in the warm climates of South America, where it is in great request, both for the delicacy of its flesh, which is tender and nourishing, and for the beauty of its plumage, particularly the feathers of the breast. The skin of this part the Indians pluck off, and, when dry, glue to their cheeks; and this they consider as an irresistible addition to their beauty.

CHAP. IV.

OF THE WOODPECKER, AND ITS AFFINITIES.

WE now come to the numerous tribe of Woodpeckers: a class easily distinguished from all others, both for their peculiar formation, their method of procuring food, and their manner of providing a place of safety for their young. Indeed, no other class of birds seems more immediately formed for the method of life they pursue, being fitted by nature, at all points, for the peculiarity of their condition. They live chiefly upon the insects contained in the body of trees; and for this purpose are furnished with a straight, hard, strong, angular, and sharp bill, made for piercing and boring. They have a tongue of a very great length; round, ending in a sharp, stiff, bony thorn, dentated on each side, to strike ants and insects when dislodged from their cells. Their legs are short and strong, for the purposes of climbing. Their toes stand two forward, and two backward; which is particularly serviceable in holding by the branches of the trees. They have hard stiff tails to lean upon when climbing. They feed only upon insects, and want that intestine which anatomists call the *cæcum*; a circumstance peculiar to this tribe only.

Of this bird there are many kinds, and many varieties in each kind. They form large colonies in the forests of every part of the world. They differ in size, colour, and appearance; and agree only in the marks above mentioned, or in those habits which result from so peculiar a conformation. Instead, therefore, of descending into a minute discrimination of every species, let us take one for a pattern, to which all the rest will be found to bear the strongest affinity. Words can but feebly describe the plumage of a bird; but it is the province of history to enter into a detail of every animal's pursuits and occupations.

The Green Woodspite, or Woodpecker is called the *rainfowl* in some parts of the country; because, when it makes a greater noise than ordinary, it is supposed to foretell rain. It is about the size of a jay; the throat, breast, and belly, are of a pale greenish colour; and the back, neck, and covert feathers of the wings, are green. But the tongue of this little animal makes its most distinguished characteristic, as it serves for its support

and defence. As was said above, the woodpecker feeds upon insects; and particularly on those which are lodged in the body of hollow or of rotting trees. The tongue is its instrument for killing and procuring this food; which cannot be found in great plenty. This is round, ending in a stiff, sharp, bony tip, dented on both sides, like the beard of an arrow and this it can dart out three or four inches from the bill, and draw in again at pleasure. Its prey is thus transfixed, and drawn into the bill, which, when swallowed, the dart is again launched at fresh game. Nothing has employed the attention of the curious in this part of anatomy, more than the contrivance by which the tongue of this bird performs its functions with such great celerity. The tongue is drawn back into the bill by the help of two small round cartilages, fastened into the forementioned bony tip, and running along the length of the tongue. These cartilages, from the root of the tongue, take a circuit beyond the ears; and being reflected backwards to the crown of the head, make a large bow. The muscular spongy flesh of the tongue incloses these cartilages, like a sheath; and is so made that it may be extended or contracted like a worm. The cartilages indeed have muscles accompanying them along their whole length backwards.—But there is still another contrivance; for there is a broad muscle joining the cartilages to the bones of the skull, which, by contracting or dilating, forces the cartilages forward through the tongue, and then forces the tongue and all through the bill, to be employed for the animal's preservation in piercing its prey.

Such is the instrument with which this bird is provided; and this the manner in which this instrument is employed. When a woodpecker, by its natural sagacity, finds out a rotten hollow tree, where there are worms, ant's eggs, or insects, it immediately prepares for its operations. Resting by its strong claws, and leaning on the thick feathers of its tail, it begins to bore with its sharp strong beak, until it discloses the whole internal habitation. Upon this, either through pleasure at the sight of its prey, or with a desire to alarm the insect colony, it sends forth a loud cry, which throws terror and confusion into the whole insect tribe. They creep hither and thither, seeking for safety; while the bird luxuriously feasts upon them at leisure, darting its tongue with unerring certainty, and devouring the whole brood.

The woodpecker, however, does not confine its depredations solely to trees, but sometimes lights upon the ground, to try its fortune at an ant-hill. It is not so secure of prey there as in the former case, although the numbers are much greater. They lie generally too deep for the bird to come at them ; and it is obliged to make up by stratagem the defect of power. The woodpecker first goes to their hills, which it pecks, in order to call them abroad ; it then thrusts out its long red tongue, which being like a worm, and resembling their usual prey, the ants come out to settle upon, in great numbers ; however, the bird watching the properest opportunity, withdraws its tongue at a jerk, and devours the devourers. This stratagem it continues till it has alarmed their fears ; or till it is quite satisfied.*

As the Woodpecker is obliged to make holes in trees to procure food, so is it also to make cavities still larger to form its nest, and to lay in. This is performed, as usual, with the bill ; although some have affirmed that the animal uses its tongue as a gimblet to bore with. But this is a mistake ; and those that are curious, may often hear the noise of the bill making its way in large woods and forests. The woodpecker chooses, however, for this purpose, trees that are decayed, or wood that is soft, like beech, elm, and poplar. In these, with very little trouble, it can make holes as exactly round as a mathematician could with compasses. One of these holes the bird generally chooses for its own use, to nestle and bring up its young in ; but as they are easily made, it is delicate in its choice, and often makes twenty before one is found fit to give entire satisfaction. Of those which it has made and deserted, other birds, not so good borers, and less delicate in their choice, take possession. The jay and the starling lay their eggs in these holes ; and bats are now and then found in peaceable possession. Boys sometimes have thrust in their hands with certain hopes of plucking out a bird's egg ; but to their great mortification, have had their fingers bitten by a bat at the bottom.

The woodpecker takes no care to line its nest with feathers

* The *Wryneck*, so called from a habit of turning the neck, bears a close analogy to the woodpeckers, in the extensibility of the tongue, and the position of the toes. This bird darts its long tongue into an ant hill, and draws it out loaded with ants, which are retained by the viscous liquid which covers it.

or straw ; its eggs are deposited in the hole, without any thing to keep them warm, except the heat of the parent's body. Their number is generally five or six ; always white, oblong, and of a middle size. When the young are excluded, and before they leave the nest, they are adorned with a scarlet plumage under the throat, which adds to their beauty.

In our climate, this bird is contented with such a wainscot habitation as has been described for its young ; but in the warmer regions of Guinea and Brazil, they take a very different method to protect and hatch their nascent progeny.* A traveller who

* Wilson, in his American Ornithology, is particularly lively in his description of the various woodpeckers of America. Of the ivory-billed woodpecker he says, " This majestic, and formidable species, in strength and magnitude, stands at the head of the whole class of woodpeckers hitherto discovered. He may be called the king or chief of his tribe ; and nature seems to have designed him a distinguished characteristic in the superb carmine crest and bill of polished ivory with which she has ornamented him. His eye is brilliant and daring ; and his whole frame so admirably adapted for his mode of life, and method of procuring subsistence, as to impress on the mind of the examiner the most reverential ideas of the Creator. His manners have also a dignity in them superior to the common herd of woodpeckers. Trees, shrubbery, orchards, rails, fence posts, and old prostrate logs, are alike interesting to those, in their humble and indefatigable search for prey ; but the royal hunter now before us, scorns the humility of such situations, and seeks the most towering trees of the forest ; seeming particularly attached to those prodigious cypress swamps, whose crowded giant sons stretch their bare and blasted, or moss-hung arms midway to the skies. In these almost inaccessible recesses, amid ruinous piles of impending timber, his trumpet-like note and loud strokes resound through the solitary savage wilds, of which he seems the sole lord and inhabitant. Wherever he frequents, he leaves numerous monuments of his industry behind him. We there see enormous pine trees with cart-loads of bark lying around their roots, and chips of the trunk itself in such quantities as to suggest the idea that half a dozen of axe-men had been at work there for the whole morning. The body of the tree is also disfigured with such numerous and so large excavations, that one can hardly conceive it possible for the whole to be the work of a woodpecker. With such strength, and an apparatus so powerful, what havoc might he not commit, if numerous, on the most useful of our forest trees ! and yet with all these appearances, and much of vulgar prejudice against him, it may fairly be questioned whether he is at all injurious ; or, at least, whether his exertions do not contribute most powerfully to the protection of our timber. Examine closely the tree where he has been at work, and you will soon perceive, that it is neither from motives of mischief nor amusement that he slices off the bark, or digs his way into the trunk.—For the sound and healthy tree is the least object of his attention. The diseased, infested with insects, and hastening to putrefaction, are his favourites ; there the deadly crawling enemy have formed a lodge-

walks into the forests of those countries, among the first strange objects that excite curiosity, is struck with the multitude of birds' nests hanging at the extremity of almost every branch. Many other kinds of birds build in this manner, but the chief of

ment between the bark and tender wood, to drink up the very vital part of the tree. It is the ravages of these vermin which the intelligent proprietor of the forest deploras, as the sole perpetrators of the destruction of his timber. Would it be believed that the larvæ of an insect, or fly, no larger than a grain of rice, should silently, and in one season, destroy some thousand acres of pine trees, many of them from two to three feet in diameter, and a hundred and fifty feet high! Yet whoever passes along the high road from Georgetown to Charleston, in South Carolina, about twenty miles from the former place, can have striking and melancholy proofs of this fact. In some places the whole woods, as far as you can see around you, are dead, stripped of the bark, their wintry-looking arms and bare trunks bleaching in the sun, and tumbling in ruins before every blast, presenting a frightful picture of desolation. And yet ignorance and prejudice stubbornly persist in directing their indignation against the bird now before us, the constant and mortal enemy of these very vermin, as if the hand that probed the wound to extract its cause, should be equally detested with that which inflicted it; or as if the thief-catcher should be confounded with the thief. Until some effectual preventive or more complete mode of destruction can be devised against these insects, and their larvæ, I would humbly suggest the propriety of protecting, and receiving with proper feelings of gratitude, the services of this and the whole tribe of woodpeckers, letting the odium of guilt fall to its proper owners.

"In looking over the accounts given of the ivory-billed woodpecker by the naturalists of Europe, I find it asserted, that it inhabits from New Jersey to Mexico. I believe, however, that few of them are ever seen to the north of Virginia, and very few of them even in that state. The first place I observed this bird at, when on my way to the south, was about twelve miles north of Wilmington in North Carolina. Having wounded it slightly in the wing, on being caught, it uttered a loudly reiterated and most piteous note, exactly resembling the violent crying of a young child; which terrified my horse so, as nearly to have cost me my life. It was distressing to hear it. I carried it with me in the chair, under cover, to Wilmington. In passing through the streets, its affecting cries surprised every one within hearing, particularly the females, who hurried to the doors and windows with looks of alarm and anxiety. I drove on, and, on arriving at the piazza of the hotel, where I intended to put up, the landlord came forward, and a number of other persons who happened to be there, all equally alarmed at what they heard; this was greatly increased by my asking, whether he could furnish me with accommodations for myself and my baby. The man looked blank and foolish, while the others stared with still greater astonishment. After diverting myself for a minute or two at their expense, I drew my woodpecker from under the cover, and a general laugh took place. I took him up stairs and locked him up in my room, while I went to see my horse taken care of. In less than an hour I returned, and, on opening the door, he set up the same distressing shout, which now appeared to

them are of the woodpecker kind ; and indeed there is not, in the whole history of nature, a more singular instance of the sagacity of those little animals in protecting themselves against such enemies as they have most occasion to fear. In cultivated

proceed from grief that he had been discovered in his attempts at escape. He had mounted along the side of the window, nearly as high as the ceiling, a little below which he had begun to break through. The bed was covered with large pieces of plaster ; the lath was exposed for at least fifteen inches square, and a hole, large enough to admit the fist, opened to the weather-boards ; so that in less than an another hour he would certainly have succeeded in making his way through. I now tied a string round his leg, and, fastening it to the table, again left him. I wished to preserve his life, and had gone off in search of suitable food for him. As I re-ascended the stairs I heard him again hard at work, and on entering had the mortification to perceive that he had almost entirely ruined the mahogany table to which he was fastened, and on which he had wreaked his whole vengeance. While engaged in taking a drawing, he cut me severely in several places, and, on the whole, displayed such a noble and unconquerable spirit, that I was frequently tempted to restore him to his native woods. He lived with me nearly three days, but refused all sustenance, and I witnessed his death with regret."

In his description of the gold-winged woodpecker, Wilson gives another amusing account of the confinement of one of that species. "In rambling through the woods one day, I happened to shoot one of these birds, and wounded him slightly on the wing. Finding him in full feather, and seemingly but little hurt, I took him home, and put him into a large cage, made of willows, intending to keep him in my own room, that we might become better acquainted. As soon as he found himself inclosed on all sides, he lost no time in idle fluttering, but, throwing himself against the bars of the cage, began instantly to demolish the willows, battering them with great vehemence, and uttering a loud piteous kind of cackling, similar to that of a hen when she is alarmed, and takes to wing. Poor Baron Trenck never laboured with more eager diligence at the walls of his prison, than this son of the forest in his exertions for liberty ; and he exercised his powerful bill with such force, digging into the sticks, seizing and shaking them so from side to side, that he soon opened for himself a passage ; and, though I repeatedly repaired the breach, and barricaded every opening, in the best manner I could, yet on my return into the room, I always found him at large, climbing up the chairs, or running about the floor, where, from the dexterity of his motions, moving backward, forward, and sidewise, with the same facility, it became difficult to get hold of him again. Having placed him in a strong wire cage, he seemed to give up all hopes of making his escape, and soon became very tame ; fed on young ears of Indian corn ; refused apples, but ate the berries of the sour gum greedily, small winter grapes, and several other kinds of berries ; exercised himself frequently in climbing, or rather hopping perpendicularly along the sides of the cage ; and, as evening drew on, fixed himself in a high hanging, or perpendicular position, and slept with his head in his wing. As soon as dawn appeared, even before it was light enough to perceive him distinctly across the room,

countries, a great part of the caution of the feathered tribe is to hide or defend their nests from the invasions of man ; as he is their most dreaded enemy. But in the depth of those remote and solitary forests, where man is but seldom seen, the little

he descended to the bottom of the cage, and began his attack on the ears of Indian corn, rapping so loud, as to be heard from every room in the house. After this he would sometimes resume his former position, and take another nap. He was beginning to become very amusing, and even sociable, when, after a lapse of several weeks, he became drooping, and died, as I conceived, from the effects of his wound."

Of the red-headed woodpecker, the most common in America, the following is Wilson's account. "There is perhaps no bird in North America more universally known than this. His tri-coloured plumage, red, white, and black, glossed with steel blue, is so striking, and characteristic ; and his predatory habits in the orchards and cornfields, added to his numbers, and fondness for hovering along the fences, so very notorious, that almost every child is acquainted with the red-headed woodpecker. In the immediate neighbourhood of our large cities, where the old timber is chiefly cut down, he is not so frequently found ; and yet at this present time, June, 1808, I know of several of their nests within the boundaries of the city of Philadelphia. Two of these are in button-wood trees (*platamus occidentalis*,) and another in the decayed limb of a large elm. The old ones, I observe, make their excursions regularly to the woods beyond the Schuylkill, about a mile distant ; preserving great silence and circumspection in visiting their nests, —precautions not much attended to by them in the depth of the woods, because there the prying eye of man is less to be dreaded. Towards the mountains, particularly in the vicinity of creeks and rivers, these birds are extremely abundant, especially in the latter end of summer. Wherever you travel in the interior at that season, you hear them screaming from the adjoining woods, rattling on the dead limbs of trees, or on the fences, where they are perpetually seen flitting from stake to stake, on the roadside, before you. Wherever there is a tree, or trees, of the wild cherry, covered with ripe fruit, there you see them busy among the branches ; and, in passing orchards, you may easily know where to find the earliest, sweetest apples, by observing those trees, on or near which the red-headed woodpecker is skulking ; for he is so excellent a connoisseur in fruit, that wherever an apple or pear tree is found broached by him, it is sure to be among the ripest and best flavoured : when alarmed, he seizes a capital one by striking his open bill deep into it, and bears it off to the woods. When the Indian corn is in its rich, succulent, milky state, he attacks it with great eagerness, opening a passage through the numerous folds of the husk, and feeding on it with voracity. The girdled, or deadened timber, so common among cornfields in the back settlements, are his favourite retreats, whence he sallies out to make his depredations. He is fond of the ripe berries of the sour gum, and pays pretty regular visits to the cherry trees, when loaded with fruit. Towards fall he often approaches the barn or farm house, and raps on the shingles and weather boards : he is of a gay and frolicsome disposition ; and half a dozen of the fraternity are frequently seen diving and vociferating around the high dead limbs of some large tree, pursuing and play-

bird has nothing to apprehend from man. The parent is careless how much the nest is exposed to general notice ; satisfied if it be out of the reach of those rapacious creatures that live by robbery and surprise. If the monkey or the snake can be

ing with each other, and amusing the passenger with their gambols. Their note or cry is shrill and lively, and so much resembles that of a species of tree-frog, which frequents the same tree, that it is sometimes difficult to distinguish the one from the other.

“ Such are the *vicious* traits, if I may so speak, in the character of the red-headed woodpecker ; and I doubt not but, from what has been said on this subject, that some readers would consider it meritorious to exterminate the whole of this tribe as a nuisance : and, in fact, the legislature of some of our provinces, in former times, offered premiums to the amount of twopence per head for their destruction. But let us not condemn the species unheard : they exist ; they must therefore be necessary. If their merits and usefulness be found, on examination, to preponderate against their vices, let us avail ourselves of the former, while we guard as well as we can against the latter.

“ Though this bird occasionally regales himself on fruit, yet his natural and most usual food is insects, particularly those numerous and destructive species that penetrate the bark and body of the tree to deposite their eggs and larvæ, the latter of which are well known to make immense havoc. That insects are his natural food is evident from the construction of his wedge-formed bill, the length, elasticity, and figure of his tongue, and the strength and position of his claws ; as well as from his usual habits. In fact, insects form at least two-thirds of his subsistence ; and his stomach is scarcely ever found without them. He searches for them with a dexterity and intelligence, I may safely say, more than human ; he perceives, by the exterior appearance of the bark, where they lurk below ; when he is dubious, he rattles vehemently on the outside with his bill, and his acute ear distinguishes the terrified vermin shrinking within to their inmost retreats, where his pointed and barbed tongue soon reaches them. The masses of bugs, caterpillars, and other larvæ, which I have taken from the stomachs of these birds, have often surprised me. These larvæ, it should be remembered, feed not only on the buds, leaves, and blossoms, but on the very vegetable life of the tree, the alburnum, or newly forming bark and wood ; the consequence is, that whole branches and whole trees decay under the silent ravages of these destructive vermin ; witness the late destruction of many hundred acres of pine trees, in the north-eastern parts of South Carolina ; and the thousands of peach trees that yearly decay from the same cause. Will any one say, that, taking half a dozen, or half a hundred, apples from a tree is equally ruinous with cutting it down ? or, that the services of a useful animal should not be rewarded with a small portion of that which it has contributed to preserve ? We are told, in the benevolent language of the Scriptures, not to muzzle the mouth of the ox that treadeth out the corn ; and why should not the same generous liberality be extended to this useful family of birds, which forms so powerful a phalanx against the inroads of many millions of destructive vermin ?

“ Notwithstanding the care which this bird, in common with the rest of

guarded against, the bird has no other enemies to fear ; for this purpose its nest is built upon the depending points of the most outward branches of a tall tree, such as the banana, or the plantain. On one of those immense trees, is seen the most various

its genus, takes to place its young beyond the reach of enemies, within the hollows of trees, yet there is one deadly foe, against whose depredations neither the height of the tree, nor the depth of the cavity, is the least security. This is the black snake (*coluber constrictor*), who frequently glides up the trunk of the tree, and, like a sculking savage, enters the woodpecker's peaceful apartment, devours the eggs or helpless young, in spite of the cries and flutterings of the parents ; and if the place be large enough, coils himself up in the spot they occupied, where he will sometimes remain for several days. The eager school-boy, after hazarding his neck to reach the woodpecker's hole, at the triumphant moment when he thinks the nestlings his own, and strips his arm, launching it down into the cavity, and grasping what he conceives to be the callow young, starts with horror at the sight of a hideous snake, and almost drops from his giddy pinnacle, retreating down the tree with terror and precipitation. Several adventures of this kind have come to my knowledge ; and one of them that was attended with serious consequences, where both snake and boy fell to the ground ; and a broken thigh, and long confinement, cured the adventurer completely of his ambition for robbing woodpeckers' nests."

Throughout his descriptions, Wilson is warm in defending the character of the woodpeckers from the aspersions of Buffon, and the prejudices of farmers. Of the Downy woodpecker he says, "this is the smallest of our woodpeckers, and so exactly resembles the former (the hairy woodpecker) in its tints and markings, and in almost every thing except its diminutive size, that I wonder how it passed through the Count de Buffon's hands without being branded as a "spurious race, degenerated by the influence of food, climate, or some unknown cause." But, though it has escaped this infamy, charges of a much more heinous nature have been brought against it, not only by the writer above mentioned, but by the whole venerable body of zoologists in Europe, who have treated of its history, viz. that it is almost constantly boring and digging into apple-trees ; and that it is the most destructive of its whole genus to the orchards. The first part of this charge I shall not pretend to deny ; how far the other is founded in truth will appear in the sequel. Like the two former species, it remains with us the whole year. About the middle of May, the male and female look out for a suitable place for the reception of their eggs and young. An apple, pear, or cherry-tree, often in the near neighbourhood of the farm-house, is generally pitched upon for this purpose. The tree is minutely reconnoitered for several days previous to the operation, and the work is first begun by the male, who cuts out a hole in the solid wood, as circular as if described with a pair of compasses. He is occasionally relieved by the female, both parties working with the most indefatigable diligence. The direction of the hole, if made in the body of the tree, is generally downwards, by an angle of thirty or forty degrees, for the distance of six or eight inches, and then straight down for ten or twelve more ; within roomy, capacious, and as smooth as if polished by the cabinet-maker ; but the entrance is judiciously left just so

and the most inimical assemblage of creatures that can be imagined. The top is inhabited by monkeys of some particular tribe, that drive off all others; lower down twine about the great trunk numbers of the larger snakes, patiently waiting till some

large as to admit the bodies of the owners. During this labour, they regularly carry out the chips, often strewing them at a distance to prevent suspicion. This operation sometimes occupies the chief part of a week. Before she begins to lay, the female often visits the place, passes out and in, examines every part both of the exterior and interior, with great attention, as every prudent tenant of a new house ought to do, and at length takes complete possession. The eggs are generally six, pure white, and laid on the smooth bottom of the cavity. The male occasionally supplies the female with food while she is sitting; and about the last week in June the young are perceived making their way up the tree, climbing with considerable dexterity. All this goes on with great regularity where no interruption is met with; but the house wren, who also builds in the hollow of a tree, but who is neither furnished with the necessary tools nor strength for excavating such an apartment for himself, allows the woodpeckers to go on, till he thinks it will answer his purpose, then attacks them with violence, and generally succeeds in driving them off. I saw some weeks ago a striking example of this, where the woodpeckers we are now describing, after commencing in a cherry-tree within a few yards of the house, and having made considerable progress, were turned out by the wren; the former began again on a pear tree in the garden, fifteen or twenty yards off, whence, after digging out a most complete apartment, and one egg being laid, they were once more assaulted by the same impertinent intruder, and finally forced to abandon the place.

"The principal characteristics of this little bird are diligence, familiarity, perseverance, and a strength and energy in the head and muscles of the neck, which are truly astonishing. Mounted on the infected branch of an old apple-tree, where insects have lodged their corroding and destructive brood in crevices between the bark and wood, he labours sometimes for half an hour incessantly at the same spot, before he has succeeded in dislodging and destroying them. At these times you may walk up pretty close to the tree, and even stand immediately below it, within five or six feet of the bird, without in the least embarrassing him; the strokes of his bill are distinctly heard several hundred yards off; and I have known him to be at work for two hours together on the same tree. Buffon calls this "incessant toil and slavery," their attitude "a painful posture," and their life "a dull and insipid existence;" expressions improper, because untrue; and absurd, because contradictory. The posture is that for which the whole organization of his frame is particularly adapted; and though, to a wren or a humming-bird, the labour would be both toil and slavery, yet to him it is, I am convinced, as pleasant and as amusing, as the sports of the chase to the hunter, or the sucking of flowers to the humming-bird. The eagerness with which he traverses the upper and lower sides of the branches; the cheerfulness of his cry, and the liveliness of his motions while digging into the tree and dislodging the vermin, justify this belief. He has a single note, or *chinck*, which, like the former species, he frequently repeats. And when he flies off, or

unwary animal comes within the sphere of their activity, and at the edges of the tree hang these artificial nests, in great abundance, inhabited by birds of the most delightful plumage.

The nest is usually formed in this manner: When the time

alights on another tree, he utters a rather shriller cry, composed of nearly the same kind of note, quickly reiterated. In fall and winter, he associates with the titmouse, creeper, &c. both in their wood and orchard excursions; and usually leads the van. Of all our woodpeckers, none rid the apple-trees of so many vermin as this, digging off the moss which the negligence of the proprietor had suffered to accumulate, and probing every crevice. In fact, the orchard is his favourite resort in all seasons; and his industry is unequalled, and almost incessant, which is more than can be said of any other species we have. In fall, he is particularly fond of boring the apple-trees for insects, digging a circular hole through the bark just sufficient to admit his bill, after that a second, third, &c. in pretty regular horizontal circles round the body of the tree; these parallel circles of holes are often not more than an inch or an inch and a half apart, and sometimes so close together, that I have covered eight or ten of them at once with a dollar. From nearly the surface of the ground up to the first fork, and sometimes far beyond it, the whole bark of many apple-trees is perforated in this manner, so as to appear as if made by successive discharges of buck-shot; and our little woodpecker, the subject of the present account, is the principal perpetrator of this supposed mischief.—I say supposed, for so far from these perforations of the bark being ruinous, they are not only harmless, but, I have good reason to believe, really beneficial to the health and fertility of the tree. I leave it to the philosophical botanist to account for this; but the fact I am confident of. In more than fifty orchards which I have myself carefully examined, those trees which were marked by the woodpecker (for some trees they never touch, perhaps because not penetrated by insects), were uniformly the most thriving, and seemingly the most productive; many of these were upwards of sixty years old, their trunks completely covered with holes, while the branches were broad, luxuriant, and loaded with fruit. Of decayed trees, more than three-fourths were untouched by the woodpecker. Several intelligent farmers, with whom I have conversed, candidly acknowledge the truth of these observations, and with justice look upon these birds as beneficial; but the most common opinion is, that they bore the trees to suck the sap, and so destroy its vegetation; though pine and other resinous trees, on the juices of which it is not pretended they feed, are often found equally perforated. Were the sap of the tree their object, the saccharine juice of the birch, the sugar maple, and several others, would be much more inviting, because more sweet and nourishing than that of either the pear or apple-tree; but I have not observed one mark on the former for ten thousand that may be seen on the latter; besides, the early part of spring is the season when the sap flows most abundantly; whereas it is only during the months of September, October, and November, that woodpeckers are seen so indefatigably engaged in orchards, probing every crack and crevice, boring through the bark, and what is worth remarking, chiefly on the south and southwest sides of the tree, for the eggs and larvæ deposited there by the countless swarms of summer insects. These, if suf-

of incubation approaches, they fly busily about, in quest of a kind of moss, called by the English inhabitants of those countries, *old man's beard*. It is a fibrous substance, and not very unlike hair, which bears being moulded into any form, and suffers being glued together. This therefore the little woodpecker, called by the natives of Brazil, the *guiratemga*, first glues, by some viscous substance gathered in the forest, to the extremest branch of a tree; then building downward, and still adding fresh materials to those already procured, a nest is formed, that depends, like a pouch, from the point of the branch: the hole to enter at, is on the side; and all the interior parts are lined with the finer fibres of the same substance, which compose the whole.

Such is the general contrivance of these hanging nests; which are made, by some other birds, with still superior art. A little bird of the Grosbeak kind, in the Philippine islands, makes its nest in such a manner that there is no opening but from the bottom. At the bottom the bird enters, and goes up through a funnel like a chimney, till it comes to the real door of the nest, which lies on one side, and only opens into this funnel.¹

Some birds glue their nest to the leaf of the banana-tree,

fered to remain, would prey upon the very vitals, if I may so express it, of the tree, and in the succeeding summer give birth to myriads more of their race, equally destructive.

"Here, then, is a whole species, I may say, genus, of birds, which Providence seems to have formed for the protection of our fruit and forest trees from the ravages of vermin, which every day destroy millions of those noxious insects that would otherwise blast the hopes of the husbandman; and which even promote the fertility of the tree; and, in return, are proscribed by those who ought to have been their protectors; and incitements and rewards held out for their destruction! Let us examine better into the operations of nature, and many of our mistaken opinions and groundless prejudices will be abandoned for more just, enlarged, and humane modes of thinking."

1 This bird constructs a curious nest with the long fibres of plants and grass, and suspends it by a kind of cord, nearly half an ell long, from the end of a slender branch of a tree, that it may be inaccessible to snakes, and secure from the intrusion of the numerous monkeys which inhabit those regions. At the end of this cord, is a gourd-shaped nest, divided into three apartments; the first of which is occupied by the male, the second by the female, and the third contains the young; and in the first apartment, where the male keeps watch, is placed on one side a little tough clay, and on the top of this clay is fixed a glow-worm, to afford its inhabitants light in the night.

which makes two sides of their little habitation ; while the other two are artificially composed by their own industry. But these, and all of the kind, are built with the same precautions to guard the young against the depredations of monkeys and serpents, which abound in every tree. The nest hangs there before the spoilers, a tempting object, which they can only gaze upon, while the bird flies in and out, without danger or molestation from so formidable a vicinity.*

** Of the nut-hatch tribe in general.* The characters of this tribe are, a bill for the most part straight, having on the lower mandible a small angle : small nostrils, covered with bristles : a short tongue, horny at the end, and jagged : toes placed three forwards, and one backwards ; the middle toe joined closely at the base to both the outer, and the back toe as large as the middle one.

In the habits and manners of the different species of the nut-hatch, we observe a very close alliance to the woodpeckers. Most of them feed upon insects ; and some on nuts, whence their English appellation has been acquired.

The European Nut-hatch. The length of this bird is five inches and three quarters. The bill is strong and straight, about three quarters of an inch long ; the upper mandible is black, and the lower white. All the upper part of the body are of a bluish grey : the cheeks and chin are white : the breast and belly pale orange colour ; and the quills dusky : the tail is short, and consists of twelve feathers ; the two middle ones of which are grey, the two outer spotted with white, and the rest dusky. The legs are pale yellow ; the claws are large, and the back one very strong.

The nut-hatch, the squirrel, and the field-mouse, which all live much on hazel nuts, have each a curious way of getting at the kernel. Of the two latter, the squirrel, after rasping off the small end, splits the shell in two with his long fore-teeth, as a man does with his knife ; the field-mouse nibbles a hole with his teeth, as regular as if drilled with a wimble, and yet so small that one would wonder how the kernel could be extracted through it ; while the nut-hatch picks an irregular ragged hole with his bill. But as this last artist has no paws to hold the nut firm while he pierces it, he, like an adroit workman, fixes it as it were in a vice, in some cleft of a tree, or in some crevice, when standing over it he perforates the stubborn shell. On placing nuts in the chink of a gate-post, where nut-hatches have been known to haunt, it has always been found that these birds have readily penetrated them. While at work they make a rapping noise, which may be heard a considerable distance. Dr Plott informs us, that this bird, by putting his bill into a crack in the bough of a tree, sometimes makes a violent sound, as if the branch was rending asunder. Besides nuts it feeds also on caterpillars, beetles, and various other insects.

The female deposits her eggs, six or seven in number, in some hole of a tree, frequently in one that has been deserted by the woodpecker, on rotten wood mixed with moss. If the entrance be too large, she nicely stops up part of it with clay, leaving only a small hole for herself to pass in and out. While the hen is sitting, if a stick be put in the hole, she hisses like a snake

CHAP. V.

OF THE BIRD OF PARADISE, AND ITS VARIETIES.

THERE are few birds that have more deceived and puzzled the learned than this. Some have described it as an inhabitant of the air, living only upon the dew of heaven, and never resting below ; others have acquiesced in the latter part of its history, but have given it flying insects to feed on. Some have asserted that it was without feet, and others have ranked it among the birds of prey.

The great beauty of this bird's plumage, and the deformity of its legs, seem to have given rise to most of these erroneous reports. The native savages of the Molucca Islands, of which it is an inhabitant, were very little studious of natural history ; and, perceiving the inclination the Europeans had for this beautiful bird, carefully cut off its legs before they brought it to market ; thus concealing its greatest deformity, they considered themselves entitled to rise in their demands when they offered it for sale. One deceit led on to another ; the buyer finding the bird without legs, naturally inquired after them ; and the seller as naturally began to assert that it had none. Thus far the European was imposed upon by others ; in all the rest he imposed upon himself. Seeing so beautiful a bird without legs, he con-

and she is so much attached to her eggs, that she will sooner suffer any one to pluck off her feathers than fly away. During the time of incubation, she is assiduously attended by the male, who supplies her with food. If the barrier of plaster at the entrance of the hole be destroyed, while these birds have eggs, it is speedily replaced ; a peculiar instinct, to prevent their nest from being destroyed by the woodpecker, and other birds of superior size and strength, which build in similar situations.

The nut-hatch is not supposed to sleep perched, like most other birds, on a twig ; for it has been observed, that when kept in a cage, notwithstanding it would perch now and then, yet at night it generally crept into some hole or corner to sleep. And it is remarkable, when perched, or otherwise at rest, it had mostly the head downwards, or at least even with the body, and not elevated like other birds.

Allied to the Nut-hatch are the *Creepers* and *Hoopœs*. Creepers scale trees in the same manner as woodpeckers, and, like them, are supported behind by their stiff deflected tail. They feed entirely on insects. The Hoopœs frequent the south of Europe in the summer months, but in winter retire to Asia and Africa. They build in decayed trees, and live on insects.

cluded that it could live only in air, where legs were unnecessary. The extraordinary splendour of its plumage assisted this deception; and, as it had heavenly beauty, so it was asserted to have a heavenly residence. From thence its name, and all the false reports that have been propagated concerning it.

Error, however, is short-lived; and time has discovered that this bird not only has legs, but very large strong ones for its size. Credulity, when undeceived, runs into the opposite extreme; and soon after this harmless bird was branded with the character of being rapacious, of destroying all those of smaller size, and from the amazing rapidity of its flight, as qualified peculiarly for extensive rapine. The real history of this pretty animal is at present tolerably well known; and it is found to be as harmless as it is beautiful.

There are two kinds of the bird of Paradise; one about the size of a pigeon, which is more common; the other not much larger than a lark, which has been described more imperfectly. They are both sufficiently distinguished from all other birds, not only by the superior vivacity of their tints, but by the feathers of the tail, there being two long slender filaments growing from the upper part of the rump; these are longer than the bird's body, and bearded only at the end. By this mark the bird of Paradise may be easily known, but still more easily by its gaudy livery, which, being so very brilliant, demands to be minutely described.

This bird appears to the eye as large as a pigeon, though in reality the body is not much greater than that of a thrush. The tail, which is about six inches, is as long as the body; the wings are large, compared with the bird's other dimensions. The head, the throat, and the neck, are of a pale gold colour. The base of the bill is surrounded by black feathers, as also the side of the head and throat, as soft as velvet, and changeable like those on the neck of a mallard. The hinder part of the head is of a shining green, mixed with gold. The body and wings are chiefly covered with beautiful brown, purple, and gold feathers. The uppermost part of the tail-feathers are of a pale yellow, and those under them white, and longer than the former; for which reason the hinder part of the tail appears to be all white. But what chiefly excites curiosity are, the two long naked feathers above mentioned, which spring from the upper

part of the rump above the tail, and which are usually about three feet long. These are bearded only at the beginning and the end; the whole shaft, for about two feet nine inches, being of a deep black, while the feathered extremity is of a changeable colour, like the mallard's neck.

This bird, which for beauty exceeds all others of the pie kind, is a native of the Molucca Islands, but found in greatest numbers in that of Aro. There, in the delightful and spicy woods of the country, do these beautiful creatures fly in large flocks; so that the groves which produce the richest spices produce the finest birds also. The inhabitants themselves are not insensible of the pleasure these afford, and give them the name of God's birds, as being superior to all others that he has made. They live in large flocks, and at night generally perch upon the same tree. They are called by some, the *swallows of Ternate*, from their rapid flight, and from their being continually on the wing in pursuit of insects, their usual prey.

As the country where they are bred has its tempestuous season, when rains and thunders continually disturb the atmosphere, these birds are then but seldom seen. It is thought that they then fly to other countries, where their food appears in greater abundance; for, like swallows, they have their stated times of return. In the beginning of the month of August, they are seen in great numbers flying together; and as the inhabitants would have us believe, following their king, who is distinguished from the rest by the lustre of his plumage, and that respect and veneration which is paid him.* In the evening they perch upon the highest

* They always migrate in flocks of thirty or forty, and have a leader, which the inhabitants of Aro call the king. He is said to be black, to have red spots, and to fly far above the flock, which never desert him, but always settle in the same place that he does. They never fly with the wind, as in that case their loose plumage would be ruffled, and blown over their heads; and a change of wind often compels them to alight on the ground, from which they cannot rise without great difficulty. When they are surprised by a heavy gale, they instantly soar to a higher region, beyond the reach of the tempest. There, in a serene sky, they float at ease on their light flowing feathers, or pursue their journey in security. During their flight they cry like starlings; but when a storm blows in their rear, they express their distressed situation by a note somewhat resembling the croaking of a raven. In calm weather, great numbers of these birds may be seen flying, both in companies and singly, in pursuit of the large butterflies and other insects, on which they feed.

trees of the forest, particularly one which bears a red berry, upon which they sometimes feed, when other food fails them. In what manner they breed, or what may be the number of their young, as yet remains for discovery.

The natives, who make a trade of killing and selling these birds to the Europeans, generally conceal themselves in the trees where they resort, and having covered themselves up from sight in a bower made of the branches, they shoot at birds with reed-arrows; and, as they assert, if they happen to kill the king, they then have a good chance for killing the greatest part of the flock. The chief marks by which they know the king is by the ends to the feathers in his tail, which have eyes like those of a peacock. When they have taken a number of these birds, their usual method is to gut them, and cut off their legs; they then run a hot iron into the body, which dries up the internal moisture; and filling the cavity with salts and spices, they sell them to the Europeans for a perfect trifle.

The general colour of these birds is chestnut, with a neck of a golden green, beneath. The feathers of the back and sides are considerably longer than those of the body. They have two long tail feathers, which are straight, and taper at the tip.

There have been ten species of this bird lately discovered.

The Grakle bird of Paradise.—It has a triangular naked space behind the eyes; the head and neck are brown; the bill and legs are yellow; the body brownish; the first quill feathers white, from the base to the middle; the tail feathers, except the middle one, are tipped with white. It inhabits the Philippine Islands; is nine and a half inches long; feeds on fruit, insects, mice, and every kind of grain. It builds twice a year, in the forked branches of trees, and lays four eggs. When young it is easily tamed, and becomes docile and imitative. This bird has a great affinity in all its habits to the Grakle genus; yet, on account of the downy feathers at the base of the bill, it is placed here.

The magnificent Bird of Paradise.—This elegant species, so remarkable for the splendour and variety of its colours, is principally found in the Molucca Islands, and is somewhat smaller than the common bird of paradise. The bill is surrounded at the base with velvet-like feathers; the chin is green, with golden lunules; crown with a tuft of yellow feathers; the first quill feathers are brown, and the secondary of a deep yellow; the middle tail feathers are very long, with a very short fringe; its legs and bill are yellow, the latter black at the tip. This beautiful bird inhabits New Holland, and is nine inches long.

CHAP. VI.

THE CUCKOO, AND ITS VARIETIES.

FROM a bird of which many fables have been reported, we pass to another that has not given less scope to fabulous invention. The note of the cuckoo is known to all the world; the history and nature of the bird itself still remains in great obscurity. That it devours its parent, that it changes its nature with the season, and becomes a sparrow-hawk, were fables invented of this bird, and are now sufficiently refuted. But where it resides in winter, or how it provides for its supply during that season, still continues undiscovered.

This singular bird, which is somewhat less than a pigeon, shaped like a magpie, and of a grayish colour, is distinguished from all other birds by its round prominent nostrils. Having disappeared all the winter, it discovers itself in our country early in the spring, by its well-known call. Its note is heard earlier or later, as the season seems to be more or less forward, and the weather more or less inviting. From the cheerful voice of this bird the farmer may be instructed in the real advancement of the year. The fallibility of human calendars is but too well known; but from this bird's note, the husbandman may be taught when to sow his most useful seeds, and to do such work as depends upon a certain temperature of the air. These feathered guides come to us heaven-taught, and point out the true commencement of the season.

The cuckoo, that was silent some time after its appearance, begins and at first feebly, at very distant intervals, to give its call, which as the summer advances, improves both in its frequency and loudness. This is an invitation to courtship, and used only by the male, who sits generally perched upon some dead tree, or bare bough, and repeats his song, which he loses as soon as the genial season is over. His note is pleasant, though uniform; and, from an association of ideas, seldom occurs to the memory without reminding us of the sweets of summer. Custom too has affixed a more ludicrous association to this note; which, however, we that are bachelors need be in no pain about.

This reproach seems to arise from this bird's making use of the bed or nest of another to deposit its own brood in.

However this may be, nothing is more certain than that the female makes no nest of her own. She repairs for that purpose to the nest of some other bird, generally the water-wagtail or hedge-sparrow, and having devoured the eggs of the owner, lays her own in their place. She usually lays but one, which is speckled, and of the size of a blackbird's. This the fond foolish bird hatches with great assiduity, and, when excluded, finds no difference in the great ill-looking changeling from her own. To supply this voracious creature, the credulous nurse toils with unusual labour, no way sensible that she is feeding up an enemy to her race, and one of the most destructive robbers of her future progeny.

It was once doubted whether these birds were carnivorous; but Reaumur was at the pains of breeding up several, and found that they would not feed upon bread or corn; but flesh and insects were their favourite nourishment. He found it a very difficult task to teach them to peck; for he was obliged to feed them a full month after they were grown as big as the mother. Insects, however, seemed to be their peculiar food when young; for they devoured flesh by a kind of constraint, as it was always put into their mouths; but meal-worm insects they flew to, and swallowed of their own accord most greedily. Indeed, their gluttony is not to be wondered at, when we consider the capacity of their stomach, which is enormous, and reaches from the breast-bone to the vent. It is partly membranous, partly muscular, and of a prodigious capacity; yet still they are not to be supposed as birds of prey, for they have neither the strength nor the courage. On the contrary, they are naturally weak and fearful, as appears by their flying from small birds, which every where pursue them. The young birds are brown, mixed with black; and in that state they have been described by some authors as old ones.

The cuckoo, when fledged and fitted for flight, follows its supposed parent but for a little time; its appetite for insect food increasing, as it finds no great chance for a supply in imitating its little instructor, it parts good friends, the step-child seldom offering any violence to its nurse. Nevertheless, all the little birds of the grove seem to consider the young cuckoo as an

enemy, and revenge the cause of their kind by their repeated insults. They pursue it wherever it flies, and oblige it to take shelter in the thickest branches of some neighbouring tree. All the smaller birds form the train of its pursuers; but the wry-neck, in particular, is found the most active in the chase; and from thence it has been called by many, the cuckoo's attendant and provider. But it is very far from following with a friendly intention; it only pursues as an insulter, or a spy, to warn all its little companions of the cuckoo's depredations.

Such are the manners of this bird while it continues to reside, or to be seen amongst us. But early, at the approach of winter, it totally disappears, and its passage can be traced to no other country. Some suppose that it lies hid in hollow trees; and others that it passes into warmer climates. Which of these opinions is true is very uncertain, as there are no facts related on either side that can be totally relied on. To support the opinion that they remain torpid during the winter at home, Willoughby introduces the following story, which he delivers upon the credit of another. "The servants of a gentleman, in the country, having stocked up in one of their meadows some old, dry, rotten willows, thought proper, on a certain occasion, to carry them home. In heating a stove, two logs of this timber were put into the furnace beneath, and fire applied as usual. But soon, to the great surprise of the family, was heard the voice of a cuckoo, singing three times from under the stove. Wondering at so extraordinary a cry in the winter time, the servants ran and drew the willow logs from the furnace, and in the midst of one of them saw something move; wherefore, taking an axe, they opened the hole, and thrusting in their hands, first they plucked out nothing but feathers; afterwards they got hold of a living animal; and this was the cuckoo that had waked so very opportunely for its own safety. It was indeed," continues our historian, "brisk and lively, but wholly naked and bare of feathers, and without any winter provision in its hole. This cuckoo the boys kept two years afterwards alive in the stove; but whether it repaid them with a second song, the author of the tale has not thought fit to inform us.

* The cuckoo makes its appearance with us in the month of April, and departs again about the latter part of June, or the beginning of July. But

The most probable opinion on this subject is, that as quails and woodcocks shift their habitations in winter, so also does the cuckoo ; but to what country it retires, or whether it has ever been seen on its journey, are questions that I am wholly incapable of resolving.

the young birds are often observed to remain for a much longer period. The reputed story of the cuckoo making no nest of its own, but depositing its egg in that of some other bird, to be hatched, and the young one reared by foster parents, has, within these late years, been fully substantiated, and found to have its origin in fact. It appears that the nest of the hedge-accentor is the one most frequently selected by the cuckoo in the south of England ; sometimes, however, that of the yellow-hammer, the wag-tail, and the meadow-pipit, answer its purpose. In Northumberland, the nest of the last mentioned bird is the one almost always chosen. Taking advantage of the absence of its dupe, during the time of laying (which generally occupies four or five days), the cuckoo deposits its egg among the rest, abandoning it, from that moment, to the care of the foster-parent. As the same period of incubation is common to both birds, the eggs are hatched nearly together, which no sooner takes place, than the young cuckoo proceeds instinctively to eject its young companions, and any remaining eggs, from the nest. To effect this object, it contrives to work itself under its burden (the back, at this early age, being provided with a peculiar depression between the shoulders), and shuffling backwards to the edge of the nest, by a jirk rids itself of the incumbrance ; and this operation is repeated, till the whole being thrown over, it remains sole possessor. This particular tendency prevails for about twelve days, after which the hollow space between the shoulders is filled up ; and when prevented from accomplishing its purpose till the expiration of that time, as if conscious of inability, it suffers its companions to remain unmolested. The egg of the cuckoo is very small in proportion to the size of the bird, which circumstance is in close connection with the instinct, that directs it to choose for its depository the nest of a smaller species. If it selected that of a larger bird, the offspring that its young one would have to contend with, being its equal, perhaps its superior, in size and weight, would consequently frustrate the design, and the young cuckoo would perish in the vain endeavour at the sole possession of the nest. It is an opinion very commonly entertained, that this bird sucks the other eggs in the nest, where it deposits its own, but there appears to be no reason for supposing this to be the case ; the belief has, without doubt, arisen from the fact of the young cuckoo being so often found sole tenant, after the expulsion of its copartners. It has been suggested by Montagu, that the cuckoo may possess the power of retaining its egg in the oviduct at pleasure, otherwise it would be difficult to account for some phenomena connected with its history.

The continuation of the species appears to require such a provision to have been granted, for, as he observes, if the cuckoo was obliged, like other birds, to lay its eggs, five or six in number, successively day after day, it is hardly probable it could find (within that time) sufficient nests in

Of this bird there are many kinds in various parts of the world, not only differing in their colours, but their size. Brisson makes not less than twenty-eight sorts of them; but what analogy they bear to our English cuckoo I will not take upon me to determine. He talks of one, particularly of Brazil, as making a most horrible noise in the forests; which, as it should seem, must be a very different note from that by which our bird is distinguished at home.*

the exact state to receive them; much less, if it laid a greater number of eggs, as has been suggested. The rare occurrence of the cuckoo's egg being found, gives additional strength to this supposition, for although the old birds may be seen in abundance, such a discovery has seldom been made.

Naturalists have been puzzled to account for this bird not performing the office of incubation, but as their researches have principally been directed to the anatomical structure, in which point it does not essentially differ from many others that perform this office, we arrive by these means at nothing satisfactory. The above peculiarity of this remarkable genus must not probably be looked for in any principle of conformation, but must be explained from their habits and economy. Let it be remembered these birds are migratory, and that the period during which the adults remain with us, is very short; but the propagation of the species must be effected during that period. Now, as their arrival does not take place before the month of April, and the egg is seldom ready for incubation before the middle of May, there would not be a sufficient length of time for the young to be hatched, or (making every allowance,) sufficiently fledged to accompany the old birds at the period of their departure, which seldom or never extends beyond the first week in July. The egg requires a fortnight's incubation, and the young are not able to fly in less than five or six weeks, which facts have been ascertained from repeated observation.

With regard to the cuckoo remaining in this country during the winter, in a state of torpidity, concealed in the hollows of trees, or in the thickest parts of furze-bushes, one or two instances of such an occurrence are not sufficient authority upon which to build a general assertion; those denuded cuckoos mentioned by WILLOUGHBY and BEWICK as thus discovered, may have been young birds of late hatchings, not sufficiently strong to leave this country even at the latest period of migration. Attempts to rear the cuckoo have often been made, but hitherto unsuccessfully, as it never reaches to the succeeding spring. The natural food of the cuckoo consists of insects, particularly the hairy larvæ of some of the lepidopterous order; one of these it first kills, by passing it through the sharp *tomia*, or edges of its mandibles, it then adroitly cuts off the hinder end, and, by repeated jerks, frees the caterpillar of the intestinal canal, after which it swallows it whole. The well-known notes of the cuckoo are confined to the male, the female making only a chattering noise. It is a bold and fierce bird, and when handled, even at an early age, ruffles its feathers, and defends itself with eagerness.

* In Europe we possess but one species of the Cuckoo. In Africa there is a remarkable species, called the *Honey-guide Cuckoo*, or *Indicator*.—It

CHAP. VII.

OF THE PARROT, AND ITS AFFINITIES.

THE Parrot is the best known among us of all foreign birds, as it unites the greatest beauty with the greatest docility. Its

colour is rusty grey, and white beneath; the eyelids are naked, black; shoulders with a yellow spot; the tail is wedged, rusty; the bill is brown at the base, and surrounded with bristles, yellow at the tip; feathers of the thighs white, with a longitudinal black streak; the quill feathers above brown, beneath grey brown; first tail feathers very narrow, and rusty; the next sooty, the inner edge whitish; the rest brown at the tip on the inner web.

The honey-guide cuckoo inhabits the interior parts of Africa; is six inches long; is fond of honey; and not being able to procure it from the hollows of trees, by its note it is said to point it out to the inhabitants, who leave it a part for its services, and so highly value it on this account, that it is criminal to destroy it.

Professor Sparmann has given us the following remarkable account of the honey cuckoo, which he first saw at the Cape of Good Hope.

“This bird has nothing striking either in his size or colour. On a superficial view he appears very like the common grey sparrow, though he is somewhat larger, and has more of a yellow tinge; he has also a small yellow spot on each shoulder, and the feathers of his tail are streaked with white. Properly speaking, it is merely self-interest that induces him to show men where bees’ nests are situated. For honey and bees’ eggs are his favourite food; and he knows, that in plundering bees’ nests a part is always lost, which will then fall to his share, or that a portion will be expressly allotted him, as a reward for his services. Nevertheless, the manner in which this bird executes his design is very remarkable. The morning and evening seem to be his principal meal times; at least it is then that he chiefly endeavours to attract the attention of men with his shrill voice. They then approach the bird, who, continuing his cry, flies on towards the place where the swarm of bees is to be found. They follow him, taking care not to make him too shy, either by much noise or by too numerous an assemblage of people; but answer from time to time with a very low whistle, to give him to understand that they are following him. I have observed,” says M. Sparmann, “that when the bees’ nest was still at a greater distance, the bird never halted till after a long flight, and then did it only in order to let the bee-hunters come up with him, and to solicit them anew to proceed; but as he came nearer to the nest, he always flew shorter distances at a time, and repeated his cry with greater earnestness and frequency. When he has at length arrived at the nest, whether it be situated in the cleft of a rock, or in a hollow tree, or under the ground, he hovers for some moments over it, and then takes his station in a neighbouring tree or bush, so that he cannot be seen by the men. They are always sure that they are near to a bees’ nest when the bird is quite silent. When they

voice also is more like a man's than that of any other; the raven is too hoarse, and the jay and magpie too shrill, to resemble the truth; the parrot's note is of the true pitch, and capable of a number of modulations that even some of our orators might wish in vain to imitate.

The ease with which this bird is taught to speak, and the great number of words which it is capable of repeating, are no less surprising. We are assured by a grave writer, that one of these was taught to repeat a whole sonnet from Petrarch; and that I may not be wanting in my instance, I have seen a parrot belonging to a distiller who had suffered pretty largely in his circumstances from an informer who lived opposite him, very ridiculously employed. This bird was taught to pronounce the ninth commandment, *Thou shalt not bear false witness against thy neighbour*, with a very clear, loud, articulate voice. The bird was generally placed in its cage over against the informer's house, and delighted the whole neighbourhood with its persevering exhortations.

Willoughby tells a story of a parrot, which is not so dull as those usually brought up when this bird's facility of talking happens to be the subject. "A parrot belonging to King Henry VII. who then resided at Westminster, in his palace by the river Thames, had learned to talk many words from the passengers as they happened to take the water. One day, sporting on its perch, the poor bird fell into the water, at the same time crying out, as loud as he could, *A boat! twenty pounds for a boat!* A waterman, who happened to be near, hearing the cry, made to the place where the parrot was floating, and taking him up, restored him to the king. As it seems the bird was a favourite, the man insisted that he ought to have a reward rather equal to his services than his trouble: and, as the parrot has cried twenty pounds, he said the king was bound in honour to grant it. The king at last agreed to leave it to the parrot's own determination, which the bird hearing, cried out, *Give the knave a groat.*"

have discovered and taken the bees' nest, under the direction of the bird, they generally reward him by leaving for him a considerable part of the bad combs, which contain the grubs, and of which he seems to be particularly fond."

The *Sacred Cuckoo* is distinguished for the compass and melody of its voice. It is held in great veneration throughout the Indian peninsula. Insects are its usual food.

The parrot, which is so common as a foreign bird with us, is equally so as an indigenous bird in the climates where it is produced. The forests swarm with them; and the rook is not better known with us than the parrot in almost every part of the East and West Indies. It is in vain that our naturalists have attempted to arrange the various species of this bird; new varieties daily offer to puzzle the system-maker, or to demonstrate the narrowness of his catalogues. Linnæus makes the number of its varieties amount to forty-seven; while Brisson doubles the number, and extends his catalogue to ninety-five. Perhaps even this list might be increased, were every accidental change of colour to be considered as constituting a new species. But, in fact, natural history gains little by these discoveries; and as its dominions are extended it becomes more barren. It is asserted, by sensible travellers, that the natives of Brazil can change the colour of a parrot's plumage by art. If this be true, and I am apt to believe the information, they can make new species at pleasure, and thus cut out endless work for our nomenclators at home.

Those who usually bring these birds over are content to make three or four distinctions, to which they give names; and with these distinctions I will content myself also. The large kind, which are of the size of a raven, are called *macaws*; the next size are simply called *parrots*; those which are entirely white, are called *lories*; and the lesser size of all are called *paraquets*. The difference between even these is rather in size than any other peculiar conformation, as they are all formed alike, having toes, two before and two behind, for climbing and holding; strong hooked bills for breaking open nuts, and other hard substances, on which they feed; and loud harsh voices, by which they fill their native woods with clamour.

But there are further peculiarities in their conformation; and first, their toes are contrived in a singular manner, which appears when they walk or climb, and when they are eating. For the first purpose they stretch two of their toes forward, and two backward; but when they take their meat, and bring it to their mouths with their foot, they dexterously and nimbly turn the greater hind toe forward, so as to take a firmer grasp of the nut or the fruit they are going to feed on, standing all the while upon the other leg. Nor even do they present their food in the usual

manner ; for other animals turn their meat inwards to the mouth ; but these, in a seemingly awkward position, turn their meat outwards, and thus hold the hardest nuts, as if in one hand, till with their bills they break the shell, and extract the kernel.

The bill is fashioned with still greater peculiarities ; for the upper chap, as well as the lower, are both moveable. In most other birds the upper chap is connected, and makes but one piece with the skull ; but in these, and in one or two species of the feathered tribe more, the upper chap is connected to the bone of the head by a strong membrane, placed on each side, that lifts and depresses it at pleasure. By this contrivance they can open their bills the wider ; which is not a little useful, as the upper chap is so hooked and so over-hanging, that, if the lower chap only had motion, they could scarcely gape sufficiently to take any thing in for their nourishment.

Such are the uses of the beak and the toes, when used separately ; but they are often employed both together, when the bird is exercised in climbing. As these birds cannot readily hop from bough to bough, their legs not being adapted for that purpose, they use both the beak and the feet ; first catching hold with the beak, as if with a hook, then drawing up the legs and fastening them, then advancing the head and beak again, and so putting forward the body and feet alternately, till they attain the height they aspire to.

The tongue of this bird somewhat resembles that of a man ; for which reason some pretend that it is so well qualified to imitate the human speech ; but the organs by which these sounds are articulated lie farther down in the throat, being performed by the great motion which the *os hyoides* has in these birds above others.

The parrot, though common enough in Europe, will not, however, breed here. The climate is too cold for its warm constitution ; and though it bears our winter when arrived at maturity, yet it always seems sensible of its rigour, and loses both its spirit and appetite during the colder part of the season. It then becomes torpid and inactive, and seems quite changed from that bustling loquacious animal which it appeared in its native forest, where it is almost ever upon the wing. Notwithstanding, the parrot lives even with us a considerable time, if it be pro-

perly attended to ; and indeed, it must be owned, that it employs but too great a part of some people's attention.

The extreme sagacity and docility of the bird may plead as the best excuse for those who spend whole hours in teaching their parrots to speak ; and, indeed, the bird, on those occasions, seems the wisest animal of the two. It at first obstinately resists all instruction ; but seems to be won by perseverance, makes a few attempts to imitate the first sounds, and when it has got one word distinct, all the succeeding come with greater facility. The bird generally learns most in those families where the master or mistress have the least to do ; and becomes more expert, in proportion as its instructors are idly assiduous. In going through the towns of France some time since I could not help observing how much plainer their parrots spoke than ours, and how very distinctly I understood their parrots speak French, when I could not understand our own, though they spoke my native language. I was at first for ascribing it to the different qualities of the two languages, and was for entering into an elaborate discussion on the vowels and consonants ; but a friend that was with me solved the difficulty at once, by assuring me that the French women scarcely did any thing else the whole day than sit and instruct their feathered pupils ; and that the birds were thus distinct in their lessons in consequence of continual schooling.

The parrots of France are certainly very expert, but nothing to those of the Brazils, where the education of a parrot is considered as a very serious affair. The history of Prince Maurice's parrot, given us by Mr Locke, is too well known to be repeated here ; but Clusius assures us that the parrots of that country are the most sensible and cunning of all animals not endued with reason. The great parrot, called the *aicurous*, the head of which is adorned with yellow, red, and violet, the body green, the ends of the wings red, the feathers of the tail long and yellow ; this bird, he asserts, which is seldom brought into Europe, is a prodigy of understanding. " A certain Brazilian woman, that lived in a village two miles distant from the island on which we resided, had a parrot of this kind which was the wonder of the place. It seemed endued with such understanding as to discern and comprehend whatever she said to it. As we sometimes used to pass by that woman's house, she used to

call upon us to stop, promising, if we gave her a comb, or a looking-glass, that she would make her parrot sing and dance to entertain us. If we agreed to her request, as soon as she had pronounced some words to the bird, it began not only to leap and skip on the perch on which it stood, but also to talk and to whistle, and imitate the shoutings and exclamations of the Brazilians when they prepare for battle. In brief, when it came into the woman's head to bid it sing, it sang; to dance, it danced. But if, contrary to our promise, we refused to give the woman the little present agreed on, the parrot seemed to sympathize in her resentment, and was silent and immoveable; neither could we, by any means, provoke it to move either foot or tongue."

This sagacity, which parrots show in a domestic state, seems also natural to them in their native residence among the woods. They live together in flocks, and mutually assist each other against other animals, either by their courage or their notes of warning. They generally breed in hollow trees, where they make a round hole, and do not line their nests within. If they find any part of a tree beginning to rot from the breaking off of a branch, or any such accident, this they take care to scoop, and to make the hole sufficiently wide and convenient; but it sometimes happens that they are content with the hole which a woodpecker has wrought out with greater ease before them; and in this they prepare to hatch and bring up their young.

They lay two or three eggs; and probably the smaller kind may lay more; for it is a rule that universally holds through nature, that the smallest animals are always the most prolific; for being, from their natural weakness, more subject to devastation, Nature finds it necessary to replenish the species by superior fecundity. In general, however, the number of their eggs is stinted to two, like those of the pigeon, and they are about the same size. They are always marked with little specks, like those of a partridge; and some travellers assure us, that they are always found in the trunks of the tallest, straightest, and the argest trees. The natives of those countries, who have little else to do, are very assiduous in spying out the places where the parrot is seen to nestle, and generally come with great joy to inform the Europeans, if there be any, of the discovery. As those birds have always the greatest docility that are taken young, such a nest is often considered as worth taking some trouble to

be possessed of; and, for this purpose, the usual method of coming at the young is, by cutting down the tree. In the fall of the tree it often happens that the young parrots are killed; but if one of them survives the shock, it is considered as a sufficient recompence.

Such is the avidity with which these birds are sought when young; for it is known they always speak best when their ear has not been anticipated by the harsh notes of the wild ones. But as the natives are not able upon all occasions to supply the demand for young ones, they are contented to take the old; and for that purpose shot them in the woods with heavy arrows, headed with cotton, which knock down the bird without killing it. The parrots thus stunned are carried home: some die, but others recover, and, by kind usage and plentiful food, become talkative and noisy.

But it is not for the sake of their conversation alone that the parrot is sought after among the savages; for though some of them are but tough and ill-tasted, yet there are other sorts, particularly of the small parakeet tribe, that are very delicate food. In general it obtains, that whatever fruit or grain these birds mostly feed upon, their flesh partakes of the flavour, and becomes good or ill-tasted, according to the quality of their particular diet. When the guava is ripe, they are at that season fat and tender; if they feed upon the seed of the acajou, their flesh contracts an agreeable flavour of garlic; if they feed upon the seed of the spicy trees, their flesh then tastes of cloves and cinnamon; while, on the contrary, it is insupportably bitter if the berries they feed on are of that quality. The seed of the cotton-tree intoxicates them in the same manner as wine does man; and even wine itself is drunk by parrots, as Aristotle assures us, by which they are thus rendered more talkative and amusing. But of all food, they are fondest of the carthamus, or bastard saffron; which though strongly purgative to man, agrees perfectly with their constitution, and fattens them in a very short time.

Of the parakeet kind in Brazil, Labat assures us, that they are the most beautiful in their plumage, and the most talkative birds in nature. They are very tame, and appear fond of mankind; they seem pleased with holding parley with him; they never have done; but while he continues to talk, answer him, and appear resolved to have the last word: but they are pos-

sessed of another quality, which is sufficient to put an end to this association ; their flesh is the most delicate imaginable, and highly esteemed by those who are fonder of indulging their appetites than their ears. The fowler walks into the woods, where they keep in abundance, but as they are green, and exactly the colour of the leaves among which they sit, he only hears their prattle, without being able to see a single bird ; he looks round him, sensible that his game is within gun-shot in abundance, but is mortified to the last degree that it is impossible to see them.

Unfortunately for these little animals, they are restless, and ever on the wing, so that in flying from one tree to another, he has but too frequent opportunities of destroying them ; for as soon as they have stripped the tree on which they sat of all its berries, some one of them flies off to another ; and if that be found fit for the purpose, it gives a loud call, which all the rest resort to. That is the opportunity the fowler has long been waiting for ; he fires in among the flock, while they are yet on the wing ; and he seldom fails of bringing down a part of them. But it is singular enough to see them when they find their companions fallen. They set up a loud outcry, as if they were chiding their destroyer, and do not cease till they see him preparing for a second charge.

But though there are so many motives for destroying these beautiful birds, they are in very great plenty ; and in some countries on the coast of Guinea, they are considered by the negroes as their greatest tormentors. The flocks of parrots persecute them with their unceasing screaming, and devour whatever fruits they attempt to produce by art in their little gardens. In other places they are not so destructive, but sufficiently common ; and, indeed, there is scarce a country of the tropical climates that has not many of the common kinds, as well as some peculiarly its own. Travellers have counted more than a hundred different kinds on the continent of Africa only : there is one country in particular, north of the Cape of Good Hope, which takes its name from the multitude of parrots which are seen in its woods. There are white parrots seen in the burning regions of Ethiopia : in the East Indies they are of the largest size ; in South America they are docile and talkative ; in all the islands of the Pacific Sea and the Indian Ocean, they swarm in great

variety and abundance, and add to the splendour of those woods which Nature has dressed in eternal green.*

So generally are these birds known at present, and so great is their variety, that nothing seems more extraordinary than that

* It would be quite a hopeless task to attempt to enumerate the species and varieties of the parrot tribe. Buffon divided the parrots,—first, into parrots of the Old Continent; second, into parrots of the New. The first are subdivided thus:

1. *Cockatoos*, with short and square tail, and mobile tuft.
2. *Parrots* proper, short and equal tail, and head destitute of tuft.
3. *Lories*, with small bill, curved and sharp: red the predominant colour in the plumage; voice, sharp; and motion, quick. Some, or the lories properly so called, have the tail moderately long, and rather angular, or corner like. Others, the lory-parrakeets, have the tail longer, and more resembling that of the parrakeets.
4. *Parrakeets*, with long tails, subdivided into those which have the tail equally graduated, and those which have the two intermediate quills much longer than the others.

5. *Parrakeets*, with short tails.

The second subdivision is composed of—

1. *Aras* or *Muccaws*, with long graduated tails, and naked cheeks.
2. *Amazons*, with tail short and equal; green plumage; red on the carpus of the wing, and yellow on the head.
3. *Cricks*, like the preceding, but without the red, having it only on the coverts; plumage, duller green, without the pure yellow on the head, and of smaller size.

4. *Papegais* (for which perhaps the word *popinjay* may be admitted as a translation), smaller than the cricks, and without red on the wing.

5. *Parrakeets* (*perruches*), subdivided into long-tailed and short.

Dr Latham has simplified this division, and distinguishes but two groups, without respect to the habitat; for, as he well observes, the uncertainty of the country of many of those birds renders such a division inconvenient. He divides the parrots into—first, those with equal: second, those with unequal tails.

Le Vaillant has in some measure modified the classification of Buffon, without taking the habitat into consideration. He acknowledges the groups of aras and cockatoos, with the characters above cited; he unites the parrots, the amazons, the cricks, and papegais, under the general denomination of parrots (*perroquets*.) He places in the division of parrakeets (*perruches*), all that have graduated tails, and feathered cheeks; but still subdivides it into four groups:—

1. Parrakeet Maccaws (*perruches-aras*), in which the circumference round the eye is naked.

2. Parrakeets proper, with cheeks entirely feathered, tail more or less long, but equally graduated and always sharp.

3. Arrow-tailed parrakeets, (*perruches a queue en fleche*), in which the two intermediate quills are much the longest.

4. Parrakeets with broad tails, whose quills are not attenuated towards

there was but one sort of them known among the ancients, and that at a time when they pretended to be masters of the world. If nothing else could serve to show the vanity of a Roman's boast, the parrot-tribe might be an instance, of which there are a

the end, among which are arranged the greater portion of the lories of Buffon.

The parrots are eminently climbing birds, as the form, the arrangement, and the strength of their toes clearly evince. When they walk on the ground, it is with a slowness, which is owing to a vacillating motion of the body, occasioned by the shortness and separation of their feet, in which the base of sustentation is very wide. They frequently place the point or upper part of their bill on the ground, which thus serves them as a point of support. In climbing, its hooked form is still more useful to them; and often when they hold any object in this bill, they rest upon the branches by the under part of their lower mandible. When they descend, they sustain themselves by the upper. This is a common habit with the majority of the parrot tribe. Still, there are some species, which, having more elevated legs, toes less long and less crooked, can walk on the ground with tolerable swiftness, and which never perch. These have been formed by Illiger into a separate genus under the name of *Pezoporus*. Others, again, have the tarsi short and flat, on which they rest in walking.

The wings of the parrots being generally short, and their bodies bulky, they have some difficulty in rising to a certain point of elevation. But that once attained, they fly very well, and often with much rapidity, and through a considerable extent of space. The majority confine themselves to lofty and thickly tufted woods, frequently on the borders of cultivated lands, the productions of which they plunder and destroy. Their ordinary mode of flight is from one branch to another; and it frequently happens, that they will not fly continuously, except when pursued. Many of them emigrate according to the season, and, in particular, the Carolina parrots. Such travel every year some hundreds of leagues, differing in this respect from the habits of the others; but they are comparatively few in number. The difficulty of flight, with many, is the cause of their restriction within narrow limits; and their concentration in certain islands, while they are not found in others, which border closely on the former. This is peculiarly the case in many of the island groups of Polynesia.

The food of the parrots consists principally of the pulps of fruits, such as those of the banana, the coffee-tree, the palm, the lemon, &c. They are especially fond of almonds. Some cockatoos of New Holland are said to live on roots, and the pezopori seek their aliment in herbs.

In domestication the parrots, maccaws, parakeets, and cockatoos, show the same partiality for vegetable seeds, and, in general, are fed very well on hemp-seed, the skins or husks of which they detach with wonderful address. Some that receive bones to gnaw, are known to acquire a very determined taste for animal substances, but especially for the tendons, ligaments, and other less succulent parts. From feeding thus, some parrots contract the habit of plucking out their own feathers, that they may suck the stem; and this becomes so imperious a want with them, that they strip their bodies absolutely naked, not leaving a vestige of down wherever the

hundred kinds now known ; not one of which naturally breeds in the countries that acknowledged the Roman power. The green parakeet, with a red neck, was the first of this kind that was brought into Europe, and the only one that was known to the ancients, from the time of Alexander the Great to the age of Nero : this was brought from India ; and when afterwards the Romans began to seek and rummage through all their dominions, for new and unheard-of luxuries, they at last found out others in Gaganda, an island of Ethiopia, which they considered as an extraordinary discovery.

Parrots have usually the same disorders with other birds ; and they have one or two peculiar to their kind. They are some-

bill can reach. They spare, however, the quills of the wings and tail, the plucking out of which would cause them too much pain. M. Desmarest mentions an instance of one of these birds belonging to M. Latreille, the body of which thus became as naked as that of a pullet plucked for roasting. This bird, notwithstanding, supported the rigour of two very severe winters, without the slightest alteration of health or appetite. M. Viellot observes, that this habit of deplumation is produced, in many parrots, by an itching of the skin, and not in consequence of their being accustomed to eat animal substances.

The parrots drink little, but often, and do it raising up the head, but less strongly than other birds. The major portion of them may be accustomed, in domestication, to drink wine, or, at all events, to eat bread which has been steeped in wine. They all use, with great dexterity, one of their feet, to carry their food to their bills, while they stand perched on the other.

These birds sojourn much on the borders of streams and rivers, and in marshy places. They are fond of the water, and seem to take the greatest delight in bathing themselves, an operation which they perform several times a-day, when in a state of nature. When they have bathed, they shake their plumage, until the greatest portion of the water is expelled, and then expose themselves to the sun, until their feathers are completely dried. In captivity, and even during the most rigorous seasons, they seek to bathe ; and, at all events, plunge the head repeatedly into water.

With the exception of the time of incubation, the parrots live in flocks, more or less numerous ; go to sleep at the setting, and awake at the rising of the sun. In sleep, they turn the head upon the back. Their sleep is light ; and it is not unfrequent to hear them utter some cries during the night. In a state of domestication, after they go to rest, is said to be the most suitable time for repeating to them such words as they are intended to learn, because they then experience no distraction.

Their life is very long ; and the mean duration of it, among the parrots, properly so called, is calculated at forty years. Instances, however, have been known, of individuals which lived in a state of domestication ninety, and even a hundred years and more. The parakeets generally live about five and twenty years.

times struck by a kind of apoplectic blow, by which they fall from their perches, and for a while seem ready to expire.* The other is the growing of the beak, which becomes so very much hooked as to deprive them of the power of eating. These infirmities, however, do not hinder them from being long-lived; for a parrot, well kept, will live five or six and twenty years.

CHAP. VIII.

THE PIGEON, AND ITS VARIETIES.†

THIS is one of the birds which, from its great fecundity, we have, in some measure, reclaimed from a state of nature, and

* Bleeding in the foot is recommended as a remedy for this. The aras or macaws are chiefly subject to this disease.

† The birds of this genus, which contains more than one hundred species, inhabit all the warm and temperate regions of the globe. The species with short and robust bill are found throughout the whole extent of Africa, in the islands of the Indian Archipelago, in New Holland, and in the islands of the South Sea. The common pigeons, with moderate bill, are the most generally extended through both continents. Those with slender bill and long legs are proper to the climates of the New World, of Africa, and of Asia, but are not found in Europe. Only four species of the common pigeons are found wild in this last part of the globe; from one of them, the biset, as is supposed, are descended all the various races which we find in a state of domestication.

The pigeons are diurnal and quiet birds, living only on pulpy fruits, berries, and grains, and but very seldom on insects and snails. They are eminently monogamous. The male and female concur in the construction of the nest, and fix it, according to the species, sometimes on the summits of the largest trees, sometimes in the bushes, and even on the ground, and sometimes in the cavities of rocks. This nest, rather rudely composed of small branches and leaves, is very wide, and usually contains but two eggs, and sometimes four. In one species only of the gallinaceous pigeons, the female lays six or eight. The male and female sit on the eggs, alternately, or together. They have two or three broods in the year, and after the last, they quit the climates where they nestle, to migrate into more southern regions. There are at least very few exceptions to this fact. The borders of forests, and the neighbourhood of waters, appear to suit them best. As these birds do not digest the seeds of certain fruits, they propagate the vegetable species in their voyages by voiding the seeds with their excrements. It is thus that the multiplication of the nutmeg tree may be explained in islands where no traces of it were to be found at no very remote era.

taught to live in habits of dependence. Indeed, its fecundity seems to be increased by human cultivation; since those pigeons that live in a wild state, in the woods, are by no means so fruitful as those in our pigeon-houses nearer home. The power of increase in most birds depends upon the quantity of their food; and it is seen, in more than one instance, that man, by supplying food in plenty, and allowing the animal at the same time a proper share of freedom, has brought some of those kinds which are known to lay but once a year, to become much more prolific.

The tame pigeon, and all its beautiful varieties, derive their origin from one species, the stock-dove only; the English name, implying its being the stock or stem from whence the other domestic kinds have been propagated. This bird, in its natural state, is of a deep bluish ash-colour; the breast dashed with a fine changeable green and purple; its wings marked with two black bars; the back white, and the tail barred near the end with black. These are the colours of the pigeon in a state of nature; and from these simple tints has man by art propagated a variety that words cannot describe, nor even fancy suggest. However, Nature still perseveres in her great outline; and though the form, colour, and even the fecundity, of these birds, may be altered by art, yet their natural manners and inclinations continue still the same.

The stock-dove, in its native woods differs from the ring-dove, a bird that has never been reclaimed, by its breeding in the holes of rocks and the hollows of trees. All other birds of the pigeon kind build, like rooks, in the topmost branches of the forest, and choose their habitation as remote as possible from man. But this species soon takes to build in artificial cavities; and, from the temptation of a ready provision and numerous society, easily submits to the tyranny of man. Still, however, it preserves its native colour for several generations, and becomes more variegated only in proportion as it removes from the original simplicity of its colouring in the woods.

The dove-house pigeon, as is well known, breeds every month; but then it is necessary to supply it with food when the weather is severe, or the fields are covered with snow. Upon other occasions, it may be left to provide for itself, and it generally repays the owner for its protection. The pigeon

lays two white eggs, which most usually produce young ones of different sexes. For the laying of each egg, it is necessary to have a particular congress with the male; and the egg is usually deposited in the afternoon. When the eggs are thus laid, the female, in the space of fifteen days, not including the three days during which she is employed in laying, continues to hatch, relieved at intervals by the male. The turns are usually regulated with great exactness. From three or four o'clock in the evening till nine the next day, the female continues to sit; she is then relieved by the male, who takes his place from ten till three, while his mate is feeding abroad. In this manner they sit alternately till the young are excluded. If, during this term, the female delays to return at the expected time, the male follows, and drives her to the nest; and should he in his turn be dilatory, she retaliates with equal severity.

The young ones, when hatched, require no food for the three first days, only wanting to be kept warm, which is an employment the female takes entirely upon herself. During this period, she never stirs out, except for a few minutes to take a little food. From this they are fed for eight or ten days with corn or grain of different kinds, which the old ones gather in the fields, and keep treasured up in their crops, from whence they throw it up again into the mouths of their young ones, who very greedily demand it.

As this method of feeding the young from the crop is different in birds of the pigeon-kind from all others, it demands a more detailed explanation. Of all birds, for its size, the pigeon has the largest crop, which is also made in a manner quite peculiar to the kind. In two of these that were dissected by a member of the Royal Academy of Sciences, it was found that if the anatomist blew air into the wind-pipe, it distended the crop or gullet to a prodigious size. This was the more extraordinary, as there seemed to be no communication whatever between these two receptacles; as the conduit by which we breathe, as every one knows, leads to a very different receptacle from that where we put our food. By what apertures the air blown into the lungs of the pigeon makes its way into the crop, is unknown; but nothing is more certain than that these birds have a power of filling the crop with air; and some of them, which are called *croppers*, distend it in such a manner, that the

bird's breast seems bigger than its body. The peculiar mechanism of this part is not well known ; but the necessity for it in these animals is pretty obvious. The pigeon, as we all know, lives entirely upon grain and water : these are mixed together in the crop ; and in the ordinary way are digested in proportion as the bird lays in its provision. But to feed its young, which are very voracious, it is necessary to lay in a store greater than ordinary and to give the food a kind of half maceration, to suit their tender appetites. The heat of the bird's body, assisted by air, and numerous glands separating a milky fluid, are the most necessary instruments for this operation : but, in proportion as the food macerates, it begins to swell also ; and the crop must, of consequence, be considerably dilated. Still, however, the air which is contained in it gives the bird a power of contracting it at pleasure ; for if it were filled with more solid substances, the bird could have no power to compress it. But this is not the case, the bird can compress its crop at pleasure ; and driving out the air, can thus drive out the food also, which is forced up the gullet, like a pellet from a pop-gun. The young ones, open-mouthed, receive this tribute of affection, and are thus fed three times a-day. In feeding, the male usually supplies the young female, while the old female supplies the young of the opposite sex. The food with which they are supplied, is more macerated at the beginning ; but as they grow older, the parents give it less preparation, and at last drive them out to shift for themselves. When well fed, however, the old ones do not wait for the total dismissal of their young ; but in the same nest are to be found young ones almost fit for flight, and eggs hatching at the same time.

The fidelity of the turtle-dove is proverbial, and makes the usual comparison of such poets as are content to repeat what others have said before them ; but the pigeon of the dove-house is not so faithful ; and having been subjected to man, it puts on licentiousness among its other domestic habits. Two males are often seen quarrelling for the same mistress ; and when the female admits the addresses of a new gallant, her old companion seems to bear the contempt with some marks of displeasure, abstaining from her company ; or if he approaches, it is only to chastise her. There have been instances when two males, being displeased with their respective mates, have thought proper to

make an exchange, and have lived in great harmony with their new companions.*

So great is the produce of this bird in its domestic state, that near fifteen thousand may, in the space of four years, be produced from a single pair. But the stock-dove seldom breeds above twice a year; for when the winter months come, the whole employment of the fond couple is rather for self-preservation, than transmitting a posterity. They seem, however, to have a stronger attachment to their young than those who are found to breed so often; whether it be that instinct acts more powerfully upon them in their state of nature, or that their affections are less divided by the multiplicity of claims.

It is from a species of these, therefore, that those pigeons which are called Carriers, and are used to convey letters, are produced. These are easily distinguished from all others by their eyes, which are compassed about with a broad circle of naked white skin, and by being of a dark blue or blackish colour. It is from their attachment to their native place, and particularly where they have brought up their young, that these birds are employed in several countries as the most expeditious carriers. They are first brought from the place where they were bred, and whither it is intended to send them back with information. The letter is tied under the bird's wing, and it is then let loose to return. The little animal no sooner finds itself at liberty, than its passion for its native spot directs all its motions. It is

* This is a favourite bird with all those who love to wander among the woods in spring, and listen to their varied harmony. They will there hear many a singular and sprightly performer; but none so mournful as this. The hopeless wo of settled sorrow, swelling the heart of female innocence itself, could not assume tones more sad, more tender and affecting. Its notes are four; the first is somewhat the highest, and preparatory, seeming to be uttered with an inspiration of the breath, as if the afflicted creature were just recovering its voice from the last convulsive sobs of distress; this is followed by three long, deep, and mournful moanings, that no person of sensibility can listen to without sympathy. A pause of a few minutes ensues, and again the solemn voice of sorrow is renewed as before. This is generally heard in the deepest shaded parts of the woods, frequently about noon and towards the evening. There is, however, nothing of real distress in all this; quite the reverse. The bird who utters it wantons by the side of his beloved partner, or invites her by his call to some favourite retired and shady retreat. It is the voice of love, of faithful connubial affection, for which the whole family of doves are so celebrated; and, among them all, none more deservingly so than the species now before us.

seen, upon these occasions, flying directly into the clouds to an amazing height ; and then, with the greatest certainty and exactness, directing itself, by some surprising instinct, towards home, which lies sometimes at many miles distance, bringing its message to those to whom it is directed. By what marks they discover the place, by what chart they are guided in the right way, is to us utterly unknown ; certain it is, that in the space of an hour and a half they perform a journey of forty miles ; which is a degree of despatch three times greater than the fleetest quadruped can perform. These birds are not brought up at present with as much care as formerly, when they were sent from governors in a besieged city to generals that were coming to relieve it without ; when they were sent from princes to their subjects with the tidings of some fortunate event ; or from lovers to their mistresses with expressions of their passion. The only use we now see made of them is to be let fly at Tyburn, when the cart is drawn away : pretty much as when some ancient hero was to be interred, an eagle was let off from the funeral pile, to complete his apotheosis.*

The varieties of the tame pigeon are so numerous, that it would be a vain attempt to mention them : so much is the figure and colour of this bird under human control, that pigeon-fanciers, by coupling a male and female of different sorts, can breed them,

* In 1765, an experiment was made, by which the velocity of flight in these birds was pretty well ascertained. A gentleman, for a trifling wager, sent a carrier pigeon from London by the coach, to a friend at St Edmondsbury ; and along with it a note, desiring that the pigeon, two days after its arrival there, might be thrown up precisely when the town clock struck nine in the morning. This was accordingly done ; and the pigeon arrived in London, and flew into the Bell Inn in Bishopsgate-street, at half an hour past eleven o'clock of the same morning ; having flown 72 miles in the space of two hours and a half. In 1803, another experiment was made, by which the pigeon was ascertained to perform a distance of 83 miles in three hours and seven minutes.

Some years ago this animal was made use of for a very extraordinary purpose. During the drawing of the Lottery, a gang of sharpers, distributed in various places, devised a scheme for making this bird the instrument of their plunder. One of these was to bring with him a carrier-pigeon, and wait in the Guildhall till a large prize was drawn, and with all possible despatch to place the fortunate number under the wing of the pigeon, and let him loose. This intelligence was faithfully conveyed to his associate, in a much more speedy manner than by the usual mode, and he was directed to ensure the number to whatever amount he thought proper. It is probable, that from this circumstance might arise the application of the common cant term *pigeon*, to any one who had been over-reached and cheated.

as they express it, to a feather. From hence we have the various names of *croppers*, *carriers*, *jacobines*, *powters*, *runts*, *turbits*: all birds that at first might have accidentally varied from the stock-dove; and then, by having these varieties still heightened by food, climate, and pairing, different species have been produced. But there are many species of the wild pigeon, which, though bearing a strong affinity to the stock-dove, are, nevertheless, sufficiently different from it to deserve a distinct description.—The *ring-dove* is of this number; a good deal larger than the former; and building its nest with a few dry sticks, in the boughs of trees. This seems a bird much fonder of its native freedom than the former; and attempts have been frequently made to render it domestic; but they have hitherto proved fruitless, for though their eggs have been hatched by the tame pigeon in a dove-house, yet, as soon as they could fly, they always betook themselves to the woods where they were first produced. In the beginning of winter these assemble in great flocks in the woods, and leave off cooing; nor do they resume this note of courtship till the beginning of March, when the genial season, by supplying them with food, renews their desires.*

* Of the migratory or wild pigeon of North America Wilson gives the following extraordinary account.—“The most remarkable characteristic of these birds,” he says, “is their associating together, both in their migrations, and also during the period of incubation, in such prodigious numbers, as almost to surpass belief; and which has no parallel among any other of the feathered tribes, on the face of the earth, with which naturalists are acquainted.

“These migrations appear to be undertaken rather in quest of food, than merely to avoid the cold of the climate; since we find them lingering in the northern regions, around Hudson’s Bay, so late as December; and, since their appearance is so casual and irregular, sometimes not visiting certain districts for several years in any considerable numbers, while at other times they are innumerable. I have witnessed these migrations in the Genesee country, often in Pennsylvania, and also in various parts of Virginia, with amazement; but all that I had then seen of them were mere straggling parties, when compared with the congregated millions which I have since beheld in our western forests, in the States of Ohio, Kentucky, and the Indiana territory. These fertile and extensive regions abound with the nutritious beech nut, which constitutes the chief food of the wild pigeon. In seasons when these nuts are abundant, corresponding multitudes of pigeons may be confidently expected. It sometimes happens that, having consumed the whole produce of the beech trees, in an extensive district, they discover another, at the distance perhaps of sixty or eighty miles, to which they regularly repair every morning, and return as regularly in the course of the day, or in the evening, to their place of general rendezvous, or, as it is usually called, th

The turtle-dove is a smaller, but a much shyer bird, than any of the former. It may easily be distinguished from the rest by the iris of the eye, which is of a fine yellow, and by a beautiful crimson circle that encompasses the eye-lids. The fidelity of

roosting place. These roosting places are always in the woods, and sometimes occupy a large extent of forest. When they have frequented one of these places for some time, the appearance it exhibits is surprising. The ground is covered to the depth of several inches with their dung; all the tender grass and underwood destroyed; the surface strewn with large limbs of trees, broken down by the weight of the birds clustering one above another: and the trees themselves, for thousands of acres, killed as completely as if girdled with an axe. The marks of this desolation remain for many years on the spot; and numerous places could be pointed out, where, for several years after, scarce a single vegetable made its appearance.

“When these roosts are first discovered, the inhabitants from considerable distances, visit them in the night, with guns, clubs, long poles, pots of sulphur, and various other engines of destruction. In a few hours, they fill many sacks, and load their horses with them. By the Indians, a pigeon roost or breeding place, is considered an important source of national profit and dependence for that season; and all their active ingenuity is exercised on the occasion. The breeding place differs from the former in its greater extent. In the western countries above mentioned, these are generally in beech woods, and often extend, in nearly a straight line, across the country for a great way. Not far from Shelbyville, in the State of Kentucky, about five years ago, there was one of these breeding places, which stretched through the woods in nearly a north and south direction; was several miles in breadth, and was said to be upwards of forty miles in extent! In this tract, almost every tree was furnished with nests, wherever the branches could accommodate them. The pigeons made their first appearance there about the 10th of April, and left it altogether, with their young, before the 25th of May.

“As soon as the young were fully grown, and before they left the nests, numerous parties of the inhabitants, from all parts of the adjacent country, came with waggons, axes, beds, cooking utensils, many of them accompanied by the greater part of their families, and encamped for several days at this immense nursery. Several of them informed me, that the noise in the woods was so great as to terrify their horses, and that it was difficult for one person to hear another speak, without bawling in his ear. The ground was strewn with broken limbs of trees, eggs, and young squab pigeons, which had been precipitated from above, and on which herds of hogs were fattening. Hawks, buzzards, and eagles, were sailing about in great numbers, and seizing the squabs from their nests at pleasure; while, from twenty feet upwards to the tops of the trees, the view through the woods presented a perpetual tumult of crowding and fluttering multitudes of pigeons, their wings roaring like thunder, mingled with the frequent crash of falling timber; for now the axe-men were at work, cutting down those trees that seemed to be most crowded with nests, and contrived to fell them in such a manner, that, in their descent, they might bring down several others; by which means the falling of one large tree sometimes produced

these birds is noted ; and a pair being put in a cage, if one dies the other will not survive it. The turtle-dove is a bird of passage, and few, or none, remain in our northern climates in winter. They fly in flocks when they come to breed here in summer,

two hundred squabs, little inferior in size to the old ones, and almost one mass of fat. On some single trees, upwards of one hundred nests were found, each containing *one* young only ; a circumstance in the history of this bird, not generally known to naturalists. It was dangerous to walk under these flying and fluttering millions, from the frequent fall of large branches, broken down by the weight of the multitudes above, and which, in their descent, often destroyed numbers of the birds themselves ; while the clothes of those engaged in traversing the woods were completely covered with the excrements of the pigeons.

“ These circumstances were related to me by many of the most respectable part of the community in that quarter ; and were confirmed in part, by what I myself witnessed. I passed for several miles through this same breeding place, where every tree was spotted with nests, the remains of those above described. In many instances, I counted upwards of ninety nests on a single tree ; but the pigeons had abandoned this place for another, sixty or eighty miles off towards Green river, where they were said at that time to be equally numerous. From the great numbers that were constantly passing over head to or from that quarter, I had no doubt of the truth of this statement. The mast had been chiefly consumed in Kentucky, and the pigeons, every morning a little before sunrise, set out for the Indiana territory, the nearest part of which was about sixty miles distant. Many of these returned before ten o'clock, and the great body generally appeared, on their return, a little after noon.

“ I had left the public road to visit the remains of the breeding place near Shelbyville, and was traversing the woods with my gun, on my way to Frankfort, when, about one o'clock, the pigeons, which I had observed flying the greater part of the morning northerly, began to return, in such immense numbers as I never before had witnessed. Coming to an opening, by the side of a creek called the Benson, where I had a more uninterrupted view, I was astonished at their appearance. They were flying, with great steadiness and rapidity, at a height beyond gunshot, in several strata deep, and so close together, that, could shot have reached them, one discharge could not have failed of bringing down several individuals. From right to left, as far as the eye could reach, the breadth of this vast procession extended, seemingly every where equally crowded. Curious to determine how long this appearance would continue, I took out my watch to note the time, and sat down to observe them. It was then half past one. I sat for more than an hour, but, instead of a diminution of this prodigious procession, it seemed rather to increase both in numbers and rapidity ; and, anxious to reach Frankfort before night, I rose and went on. About four o'clock in the afternoon I crossed the Kentucky river, at the town of Frankfort, at which time the living torrent above my head seemed as numerous and as extensive as ever. Long after this I observed them, in large bodies, that continued to pass for six or eight minutes, and these again were followed by other detached bodies, all moving in the same south-east direction, till

and delight in open, mountainous, sandy countries. But they build their nests in the midst of woods, and choose the most retired situations for incubation. They feed upon all sorts of grain, but are fondest of millet-seed.

after six in the evening. The great breadth of front which this mighty multitude preserved would seem to intimate a corresponding breadth of their breeding place, which, by several gentlemen, who had lately passed through part of it, was stated to me at several miles. It was said to be in Green county, and that the young began to fly about the middle of March. On the 17th of April, forty-nine miles beyond Danville, and not far from Green River, I crossed this same breeding place, where the nests, for more than three miles, spotted every tree; the leaves not being yet out, I had a fair prospect of them, and was really astonished at their numbers. A few bodies of pigeons lingered yet in different parts of the woods, the roaring of whose wings was heard in various quarters around me.

"All accounts agree in stating, that each nest contains only one young squab. These are so extremely fat, that the Indians, and many of the whites, are accustomed to melt down the fat, for domestic purposes, as a substitute for butter and lard. At the time they leave the nest, they are nearly as heavy as the old ones; but become much leaner, after they are turned out to shift for themselves.

"It is universally asserted in the western countries, that the pigeons, though they have only one young at a time, breed thrice, and sometimes four times, in the same season; the circumstances already mentioned render this highly probable. It is also worthy of observation, that this takes place during that period when acorns, beech nuts, &c. are scattered about in the greatest abundance, and mellowed by the frost. But they are not confined to these alone,—buckwheat, hempseed, Indian corn, hollyberries, hackberries, huckleberries, and many others, furnish them with abundance at almost all seasons. The acorns of the live oak are also eagerly sought after by these birds, and rice has been frequently found in individuals killed many hundred miles to the northward of the nearest rice plantation. The vast quantity of mast which these multitudes consume is a serious loss to the bears, pigs, squirrels, and other dependents on the fruits of the forest. I have taken, from the crop of a single wild pigeon, a good handful of the kernels of beech nuts, intermixed with acorns and chestnuts. To form a rough estimate of the daily consumption of one of these immense flocks, let us first attempt to calculate the numbers of that above mentioned, as seen in passing between Frankfort and the Indiana territory: If we suppose this column to have been one mile in breadth (and I believe to have been much more), and that it moved at the rate of one mile in a minute, four hours, the time it continued passing, would make its whole length two hundred and forty miles. Again, supposing that each square yard of this moving body comprehended three pigeons, the square yards in the whole space, multiplied by three, would give two thousand two hundred and thirty millions, two hundred and seventy-two thousand pigeons!—an almost inconceivable multitude, and yet probably far below the actual amount. Computing each of these to consume half a pint of mast daily, the whole quantity at this rate would equal seventeen millions, four hundred and twenty-four thousand bushels

To this short list might be added a long catalogue of foreign pigeons, of which we know little more than the plumage and the names. Indeed, the variety of their plumage is as beautiful, as the names by which they are known are harsh and dissonant.

per day! Heaven has wisely and graciously given to these birds rapidity of flight and a disposition to range over vast uncultivated tracts of the earth, otherwise they must have perished in the districts where they resided, or devoured up the whole productions of agriculture, as well as those of the forests.

“A few observations on the mode of flight of these birds must not be omitted. The appearance of large detached bodies of them in the air, and the various evolutions they display, are strikingly picturesque and interesting. In descending the Ohio by myself, in the month of February, I often rested on my oars to contemplate their aerial manœuvres. A column, eight or ten miles in length, would appear from Kentucky, high in air, steering across to Indiana. The leaders of this great body would sometimes gradually vary their course, until it formed a large bend, of more than a mile in diameter, those behind tracing the exact route of their predecessors. This would continue sometimes long after both extremities were beyond the reach of sight; so that the whole, with its glittery undulations, marked a space on the face of the heavens resembling the windings of a vast and majestic river. When this bend became very great, the birds, as if sensible of the unnecessary circuitous course they were taking, suddenly changed their direction, so that what was in column before became an immense front, straightening all its indentures, until it swept the heavens in one vast and infinitely extended line. Other lesser bodies also united with each other as they happened to approach, with such ease and elegance of evolution, forming new figures, and varying these as they united or separated, that I was never tired of contemplating them. Sometimes a hawk would make a sweep on a particular part of the column, from a great height, when, almost as quick as lightening, that part shot downwards out of the common track; but, soon rising again, continued advancing at the same height as before. This inflection was continued by those behind, who, on arriving at this point dived down, almost perpendicularly, to a great depth, and rising, followed the exact path of those that went before. As these vast bodies passed over the river near me, the surface of the water, which was before smooth as glass, appeared marked with innumerable dimples, occasioned by the dropping of their dung, resembling the commencement of a shower of large drops of rain or hail.

“The nest of the wild pigeon is formed of a few dry slender twigs, carelessly put together, and with so little concavity, that the young one, when half grown, can easily be seen from below. The eggs are pure white. Great numbers of hawks, and sometimes the bald eagle himself, hover about those breeding places, and seize the old or the young from the nest amidst the rising multitudes, and with the most daring effrontery. The young, when beginning to fly, confine themselves to the under part of the tall woods where there is no brush, and where nuts and acorns are abundant, searching among the leaves for mast, and appear like a prodigious torrent rolling along through the woods, every one striving to be in the front. Vast numbers of

The *ocotzintzcan*, for instance, is one of the most splendid tenants of the Mexican forests; but few, I believe, would desire to learn the name, only to be informed that it is covered with purple, green, and yellow plumage. To describe such birds, the historian's pen is not half such a useful implement as the painter's pencil.

they are shot while in this situation. A person told me, that he once rode furiously into one of these rolling multitudes, and picked up thirteen pigeons, which had been trampled to death by his horse's feet. In a few minutes, they will beat the whole nuts from a tree with their wings, while all is a scramble, both above and below, for the same. They have the same cooing notes common to domestic pigeons, but much less of their gesticulations. In some flocks you will find nothing but young ones, which are easily distinguishable by their motley dress. In others, they will be mostly females; and again, great multitudes of males, with few or no females. I cannot account for this in any other way than that, during the time of incubation, the males are exclusively engaged in procuring food, both for themselves and their mates; and the young, being unable yet to undertake these extensive excursions, associate together accordingly. But, even in winter, I know of several species of birds who separate in this manner, particularly the red-winged starling, among which thousands of old males may be found, with few or no young or females along with them."

BOOK V.

OF BIRDS OF THE SPARROW KIND.

CHAP. I.

OF BIRDS OF THE SPARROW KIND.

STILL descending from the larger to the smaller, we come to birds of the sparrow kind ; or that class of beautiful little animals that, being less than the pigeon, go on diminishing till we arrive at the humming-bird, the smallest of the feathered creation.

The birds which compose this class chiefly live in the neighbourhood of man, and are his greatest favourites. The falcon may be more esteemed, and the turkey more useful ; but these he considers as servants, not as friends ; as animals reclaimed merely to supply him with some of the conveniences of life : but these little painted songsters have his affections, as well from their beauty as their melody ; it is this delightful class that fill his groves with harmony, and lift his heart to sympathize with their raptures. All the other classes are either mute or screaming ; it is this diminutive tribe only that have voices equal to the beauty of their figures ; equally adapted to rejoice man, and delight each other.

As they are the favourites of man, so they are chiefly seen near him. All the great birds dread its vicinity, and keep to the thickest darkness of the forest, or the brow of the most craggy precipice : but these seldom resort to the thicker parts of the wood ; they keep near its edges, in the neighbourhood of cultivated fields, in the hedge-rows of farm-grounds, and even in the yard, mixing with the poultry.

It must be owned, indeed, that their living near man is not a society of affection on their part, as they approach inhabited grounds merely because their chief provision is to be found

there. In the depth of the desert, or the gloom of the forest, there is no grain to be picked up ; none of those tender buds that are so grateful to their appetites : insects themselves, that make so great a part of their food, are not found there in abundance ; their natures being unsuited to the moisture of the place. As we enter, therefore, deeper into uncultivated woods the silence becomes more profound ; every thing carries the look of awful stillness ; there are none of those warblings, none of those murmurs, that awaken attention, as near the habitations of men ; there is nothing of that confused buzz, formed by the united, though distant voices of quadrupeds and birds ; but all is profoundly dead and solemn. Now and then, indeed, the traveller may be roused from this lethargy of life, by the voice of a heron, or the scream of an eagle ; but his sweet little friends and warblers have totally forsaken him.

There is still another reason for these little birds avoiding the depths of the forests ; which is, that their most formidable enemies usually reside there. The greater birds, like robbers, choose the most dreary solitudes for their retreats ; and if they do not find, they make a desert all around them. The small birds fly from their tyranny, and take protection in the vicinity of man, where they know their more unmerciful foes will not venture to pursue them.

All birds, even those of passage, seem content with a certain district to provide food and centre in. The red-breast or the wren seldom leaves the field where it has been brought up, or where its young have been excluded ; even though hunted it flies along the hedge, and seems fond of the place with an imprudent perseverance. The fact is, all these small birds mark out a territory to themselves, which they will permit none of their own species to remain in ; they guard their dominions with the most watchful resentment ; and we seldom find two male tenants in the same hedge together.

Thus, though fitted by Nature for the most wandering life, these little animals do not make such distant excursions, during the season of their stay, as the stag or the leveret. Food seems to be the only object that puts them in motion, and when that is provided for them in sufficient plenty, they never wander. But as that is seldom permanent through the year, almost every bird is then obliged to change its abode. Some are called *birds*

of passage, because they are obliged to take long journeys for this purpose; but, strictly speaking, almost every other kind are birds of passage, though their migration may not be to places so remote. At some particular season of the year all small birds migrate either from one country to another, or from the more inland provinces towards the shore.

There are several persons who get a livelihood by watching the seasons when our small birds begin to migrate from one county to another, and by taking them with nets in their passage. The birds are found to fly, as the bird-catchers term it, chiefly during the month of October, and part of September and November. There is also another flight in March, which is much less considerable than that in autumn. Nor is it less remarkable, that several of these species of flight-birds make their appearance in regular succession. The pipit, for instance, begins his flight every year about Michaelmas, when they are caught in greatest number. To this the wood-lark succeeds, and continues its flight till towards the middle of October; other birds follow, but are not so punctually periodical; the greenfinch does not begin till the frost obliges it to seek for a change. These birds, during those months, fly from day-break till twelve noon; and there is afterwards a small flight from two till night. Such are the seasons of the migration of the birds, which have been usually considered as stationary, and on these occasions they are caught in great abundance, as they are on their journey. But the same arts used to allure them upon other occasions would be utterly fruitless, as they avoid the nets with the most prudent circumspection. The autumnal flight probably consists of the parents conducting their new-fledged young to those places where there is sufficient provision, and a proper temperament of the air during the winter season; and their return in spring is obviously from an attachment to the place which was found so convenient before for the purposes of nestling and incubation.

Autumn is the principal season when the bird-catcher employs his art to catch these wanderers. His nets are a most ingenious piece of mechanism, being generally twelve yards and a half long, and two yards and a half wide, and so contrived as from a flat position to rise on each side, and clap over the birds that are decoyed to come between them. The birds in their

passage are always observed to fly against the wind ; hence there is a great contention among the bird-catchers which shall gain the wind ; for example, if it is westerly, the bird-catcher who lays his nets to the east is sure of the most plentiful sport, if his call-birds are good. For this purpose he generally carries five or six linnets, two gold-finches, two-green finches, one wood-lark, one red-poll, and perhaps a bull-finch, a yellow-hammer, a tit-lark, and an aberdavine : these are placed at small distances from the nets in little cages. He has besides what he calls his *flur-birds*, which are placed upon a moveable perch, which the bird-catcher can raise at pleasure by means of a string ; and these he always lifts gently up and down as the wild bird approaches. But this is not enough to allure the wild bird down ; it must be called by one of the call-birds in the cages ; and these, by being made to moult prematurely in a warm cage, call louder and better than those that are wild and at freedom. There even appears a malicious joy in these call-birds to bring the wild ones into the same state of captivity, while at the same time their call is louder, and their plumage brighter, than in a state of nature. Nor is their sight or hearing less exquisite, far exceeding that of the bird-catcher ; for the instant the wild birds are perceived, notice is given by one to the rest of the call-birds, who all unite in the same tumultuous ecstacy of pleasure. The call-birds do not sing upon these occasions as a bird does in a chamber, but incite the wild ones by short jerks, which, when the birds are good, may be heard at a great distance. The allurements of this call is so great that the wild bird hearing it, is stopped in its most rapid flight ; and, if not already acquainted with the nets, lights boldly within twenty yards perhaps of the bird-catcher, and on a spot which it would otherwise have quite disregarded. This is the opportunity wished for, and the bird-catcher pulling a string, the nets on each side rise in an instant, and clap directly down on the poor little unsuspecting visitant. Nay, it frequently happens, that if half a flock only are caught, the remaining half will immediately afterwards light between the nets, and share the fate of their companions. Should only one bird escape, this unhappy survivor will also venture into danger till it is caught ; such a fascinating power have the call birds.

Indeed, it is not easy to account for the nature of this call,

whether it be a challenge to combat, an invitation to food, or a prelude to courtship. As the call-birds are all males, and as the wild birds that attend to their voice are most frequently males also, it does not seem that love can have any influence in their assiduity. Perhaps the wild females, in these flights, attend to and obey the call below, and their male companions of the flight come down to bear them company. If this be the case, and that the females have unfaithfully led their mates into the nets, they are the first that are punished for their infidelity: the males are only made captives for singing; while the females are indiscriminately killed, and sold to be served up to the tables of the delicate.

Whatever be the motives that thus arrest a flock of birds in their flight, whether they be of gallantry or of war, it is certain that the small birds are equally remarkable for both. It is, perhaps, the genial desire that inspires the courage of most animals; and that being greatest in the males, gives them a greater degree of valour than the females. Small birds being extremely amorous, are remarkably brave. However contemptible these little warriors are to large creatures, they are often but too formidable to each other; and sometimes fight till one of them yields up his life with the victory. But their contentions are sometimes of a gentler nature. Two male birds shall strive in song till, after a long struggle, the loudest shall entirely silence the other. During these contentions, the female sits an attentive silent auditor, and often rewards the loudest songster with her company during the season.

Singing among birds is almost universally the prerogative of the male. With them it is the reverse of what occurs in the human kind. Among the feathered tribe, the heaviest cares of life fall to the lot of the female. Hers is the fatigue of incubation, and to her devolves the principal fatigue of nursing the helpless brood. To alleviate these fatigues, and to support her under them, Nature has given the song to the male. This serves, as a note of blandishment at first to attract her affections; it serves as a note to delight her during the time of her incubation; but it serves still farther as a note of security, to assure her that no danger threatens to molest her. The male, while his mate is hatching, sits upon some neighbouring tree, continuing at once to watch and to sing. While his voice is heard, the female

rests in confident security ; and, as the poet expresses it, appears *most bless'd when most unseen* : but if any appearance of danger offers to intrude, the male, that a moment before was so loud and sportive, stops all of a sudden ; and this is a most certain signal to his mate to provide for her own security.

The nest of little birds seems to be of a more delicate contrivance than that of the larger kinds. As the volume of their bodies is smaller, the materials of which their nests are composed are generally warmer. It is easy to conceive that small things keep heat a shorter time than those that are large. The eggs, therefore, of small birds require a place of more constant warmth than those of great ones, as being liable to cool more quickly ; and accordingly their nests are built warmer and deeper, lined on the inside with softer substances, and guarded above with a better covering. But it sometimes happens that the little architects are disturbed in their operations, and then they are obliged to make a nest, not such as they wish, but such as they can. The bird whose nest has been robbed several times, builds up her last in a very slovenly manner, conscious that, from the near approach of winter, she must not take time to give her habitation every possible advantage it is capable of receiving. When the nest is finished, nothing can exceed the cunning which the male and female employ to conceal it. If it is built in bushes, the pliant branches are so disposed as to hide it entirely from the view ; if it be built among moss, nothing outwardly appears to show that there is a habitation within. It is always built near those places where food is found in greatest abundance ; and they take care never to go in or out while there is any one in sight. The greater birds continue from their nest for some time, as their eggs take no damage in their absence ; but the little birds are assiduous while they sit, and the nest is always occupied by the male when the female is obliged to seek for sustenance.

The first food of all birds of the sparrow kind is worms and insects. Even the sparrow and the gold-finch, that when adult feed only upon grain, have both been fed upon insects while in the nest. The young ones, for some time after their exclusion from the shell, require no food ; but the parent soon finds, by their chirping and gaping, that they begin to feel the approaches of hunger, and flies to provide them a plentiful supply. In her absence they continue to lie close together, and cherish each

other by their mutual warmth. During this interval also they preserve a perfect silence, uttering not the slightest note, till the parent returns. Her arrival is always announced by a chirrup, which they perfectly understand, and which they answer all together, each petitioning for its portion. The parent distributes a supply to each by turns, cautiously avoiding to gorge them, but to give them often, though little at a time. The wren will in this manner feed seventeen or eighteen young ones without passing over one of them.

Such is the manner in which these birds bring forth and hatch their young; but it remains to usher them from the nest into life, and this they very assiduously perform. When they are fully fledged, and fitted for short flights, the old ones, if the weather be fair, lead them a few yards from the nest, and then compel them to return. For two or three succeeding days they are led out in the same manner, but each day to seek more distant adventures. When it is perceived that they can fly, and shift for themselves, then the parents forsake them for ever, and pay them no more attention than they do to other birds in the same flock. Indeed, it would seem among these little animals that, from the moment their young are set out, all future connexion ceases between the male and female; they go separate ways, each to provide for itself during the rigours of winter; and, at the approach of spring, each seeks for a new associate.

In general, birds, when they come to pair in the spring, associate with those of their own age and place of abode. Their strength or courage is generally in proportion to their age: the oldest females first feel the accessions of desire, and the oldest males are the boldest to drive off all younger pretenders. Those next in courage and desire become pretenders, till they are almost all provided in turn. The youngest come last; as, in fact, they are the latest in their inclinations. But still there are several, both males and females, that remain unprovided for; either not happening to meet with each other, or at least not during the genial interval. Whether these mix with small birds of a different species, is a doubt which naturalists have not been able thoroughly to resolve. Addison, in some beautiful Latin lines, inserted in the *Spectator*, is entirely of opinion that birds observe a strict chastity of manners, and never admit the caresses of a different tribe.

Chaste are their instincts, faithful is their fire,
 No foreign beauty tempts to false desire :
 The snow-white vesture, and the glittering crown,
 The simple plumage, or the glossy down,
 Prompt not their love. The patriot bird pursues
 His well acquainted tints, and kindred hues :
 Hence thro' their tribes no mix'd polluted flame,
 No monster-breed to mark the groves with shame :
 But the chaste blackbird, to its partner true,
 Think's black alone is Beauty's fav'rite hue :
 The nightingale, with mutual passion bless'd,
 Sings to its mate, and nightly charms the nest :
 While the dark owl, to court his partner flies,
 And owns his offspring in their yellow eyes.

But whatever may be the poet's opinion, the probability is against this fidelity among the smaller tenants of the grove. The great birds are much more true to their species than these ; and, of consequence, the varieties among them are more few. Of the ostrich, the cassowary, and the eagle, there are but few species ; and no arts that man can use could probably induce them to mix with each other.

But it is otherwise with the small birds we are describing ; it requires very little trouble to make a species between a gold-finch, and a canary-bird, between a linnet and a lark. They breed frequently together ; and produce a race, not like the mules among quadrupeds, incapable of breeding again ; for this motley mixture are as fruitful as their parents. What is so easily done by art, very probably happens in a state of nature ; and when the male cannot find a mate of his own species he flies to one of another, that, like him, has been left out in pairing. This, some historians think, may have given rise to the great variety of small birds that are seen among us ; some uncommon mixture might first have formed a new species, and this might have been continued down, by birds of this species choosing to breed together.

Whether the great variety of our small birds may have arisen from this source cannot now be ascertained ; but certain it is that they resemble each other very strongly, not only in their form and plumage, but also in their appetites and manner of living. The gold-finch, the linnet, and the yellow-hammer, though obviously of different species, yet lead a very similar life ; being equally an active, lively, salacious tribe, that subsist by petty thefts upon the labours of mankind, and repay them with a song.

Their nests bear a similitude; and they are all about the same time in hatching their young, which is usually fifteen days. Were I, therefore, to describe the manners of these with the same minuteness that I have done the greater birds, I should only present the reader with a repetition of the same accounts; animated neither by novelty nor information. Instead, therefore, of specifying each sort, I will throw them into groups; uniting those together that practise the same manners, or that are remarkable for similar qualifications.

Willoughby has divided all the smaller birds into those that have slender bills, and those that have short and thick bills. Those with slender bills, chiefly live upon insects; those with short strong bills, live mostly upon fruits and grain. Among slender-billed birds he enumerates the thrush, the blackbird, the field-fare, the starling, the lark, the titmouse, the water-wagtail, the nightingale, the red start, the robin-redbreast, the beccafigo, the stone-chatter, the whin-chat, the gold-finch, the white-throat, the hedge-sparrow, the pettichaps, the golden-crowned wren, the wren, the humming-bird, and several other small birds of the sparrow-kind, unknown in this part of the world.

All these, as was said, live for the most part upon insects; and are consequently of particular benefit to man. By these are his grounds cleared of the pernicious swarms of vermin that devour the budding leaves and flowers; and that even attack the root itself, before ever the vegetable can come to maturity. These seek for and destroy the eggs of insects that would otherwise propagate in numbers beyond the arts of man to extirpate; they know better than man where to seek for them; and thus at once satisfy their own appetites, and render him the most essential services.*

* *The Sparrow*.—We have no bird (says Mr Knapp, in his *Journal of a Naturalist*) more generally known, thought of, or mentioned with greater indifference, perhaps contempt, than the common sparrow (*fringilla domestica*), “that sitteth alone on the house-top;” yet it is an animal that Nature seems to have endowed with peculiar characteristics, having ordained for it a very marked provision, manifested in its increase and maintenance, notwithstanding the hostile attacks to which it is exposed. A dispensation that exists throughout creation is brought more immediately to our notice by the domestic habits of this bird. The natural tendency that the sparrow has to increase, will often enable one pair of birds to bring up fourteen or more young ones in the season. They build in places of perfect security from the plunder of larger birds and vermin. Their art and

But this is not the only merit of this tribe : in it we have the sweetest songsters of the grove ; their notes are softer, and their manner more musically soothing, than those of hard-billed birds. The foremost in musical fame are the nightingale, the thrush,

ingenuity in commonly attaching their nests beneath that of the rook, high in the elm, a bird whose habits are perfectly dissimilar, and with which they have no association whatever, making use of their structure only for a defence to which no other bird resorts, manifest their anxiety and contrivance for the safety of their broods. With peculiar perseverance and boldness, they forage and provide for themselves and their offspring ; will filch grain from the trough of the pig, or contend for its food with the gigantic turkey ; and, if scared away, their fears are those of a moment, as they quickly return to their plunder ; and they roost protected from all the injuries of weather. These circumstances tend greatly to increase the race, and in some seasons their numbers in our corn-fields towards autumn are prodigious ; and did not events counteract the increase of this army of plunderers, the larger portion of our bread-corn would be consumed by them. But their reduction is as rapidly accomplished as their increase, their love of association bringing upon them a destruction, which a contrary habit would not tempt. They roost in troops in our ricks, in the ivy on the wall, &c., and are captured by the net : they cluster on the bush, or crowd on the chaff by the barn door, and are shot by dozens at a time, or will rush in numbers, one following another, into the trap. These and various other engines of destruction so reduce them in the winter season, that the swarms of autumn gradually diminish, till their numbers in spring are in no way remarkable. I have called them plunderers, and they are so ; they are benefactors likewise, seeming to be appointed by Nature as one of the agents for keeping from undue increase another race of creatures, and by their prolificacy they accomplish it. In spring and the early part of the summer, before the corn becomes ripe, they are insectivorous, and their constantly-increasing families require an unceasing supply of food. We see them every minute of the day in continual progress, flying from the nest for a supply, and returning on rapid wing with a grub, a caterpillar, or some reptile ; and the numbers captured by them in the course of these travels are incredibly numerous, keeping under the increase of these races, and making ample restitution for their plunderings and thefts. When the insect race becomes scarce, the corn and seeds of various kinds are ready ; their appetite changes, and they feed on these with undiminished enjoyment.

We have scarcely another bird, the appetite of which is so accommodating in all respects as that of the house sparrow. It is, I believe, the only bird that is a voluntary inhabitant with man—lives in his society, and is his constant attendant, following him wherever he fixes his residence. It becomes immediately an inhabitant of the new farm-house, in a lonely place or recent inclosure, or even in an island ; will accompany him into the crowded city, and build and feed there in content, unmindful of the noise, the smoke of the furnace, or the steam-engine, where even the swallow and the martin, that flock around him in the country, are scared by the tumult, and leave him : but the sparrow, though begrimed with soot, does not forsake him ; feeds on his food, rice, potatoes, or almost any other extraneous substance

the blackbird, the lark, the red-breast, the black-cap, and the wren.

Birds of the sparrow-kind, with thick and short bills, are the gross-beak, the green-finch, the bull-finch, the crossbill, the house-sparrow, the chaffinch, the brambling, the gold-finch, the

he may find in the street ; looks to him for his support, and is maintained almost entirely by the industry and providence of man. It is not known in a solitary and independent state.

Mr Smellie relates a pleasing anecdote of the affection of sparrows towards their offspring.

“ When I was a boy (says this gentleman) I carried off a nest of young sparrows, about a mile from my place of residence. After the nest was completely moved, and while I was marching home with them in triumph, I perceived with some degree of astonishment, both the parents following me at some distance, and observing my motions in perfect silence. A thought then struck me, that they might follow me home, and feed the young according to their usual manner. When just entering the door, I held up the nest, and made the young ones utter the cry which is expressive of the desire of food. I immediately put the nest and the young in the corner of a wire cage, and placed it on the outside of a window. I chose a situation in a room, where I could perceive all that should happen, without being myself seen. The young animals soon cried for food. In a short time both parents, having their bills filled with small caterpillars, came to the cage, and after chatting a little, as we should do with a friend, through the lattice of a prison, gave a small worm to each. This parental intercourse continued regularly for some time, till the young ones were completely fledged, and had acquired a considerable degree of strength. I then took one of the strongest of them, and placed him on the outside of the cage, in order to observe the conduct of the parents, after one of their offspring was emancipated. In a few minutes, both parents arrived as usual, loaded with food. They no sooner perceived that one of their children had escaped from prison, than they fluttered about, and made a thousand noisy demonstrations of joy, both with their wings and their voices. These tumultuous expressions of unexpected happiness, at last gave place to a more calm and soothing conversation. By their voices, and their movements, it was evident that they earnestly entreated him to follow them and to fly from his present dangerous state. He seemed to be impatient to obey their mandates ; but by his gestures, and the feeble sounds he uttered, he plainly expressed that he was afraid to try an exertion he had never before attempted. They however, incessantly repeated their solicitations : by flying, alternately, from the cage to a neighbouring chimney-top, they endeavoured to show him how easily the journey was to be accomplished. He at last committed himself to the air, and alighted in safety. On his arrival, another scene of clamorous and active joy was exhibited. Next day I repeated the same experiment, by exposing another of the young ones on the top of the cage. I observed the same conduct with the remainder of the brood, which consisted of four. I need hardly add, that not one, either of the parents or children, ever again revisited the execrated cage.”

linnet, the siskin, the bunting, the yellow-hammer, the ortlan, the wheat-ear, and several other foreign birds, of which we know rather the names than the history. These chiefly feed upon fruits, grain, and corn.—They are often troublesome to man, as they are a numerous tribe; the harvest often suffers from their depredations; and while they are driven off from one end of the field, they fly round, and come in at the other. But these also have their uses: they are frequently the distributors of seeds into different districts; those grains which they swallow are sometimes not wholly digested; and these, laid upon a soil congenial to them, embellish the face of nature with that agreeable variety, which art but vainly attempts to imitate. The mistletoe plant, which we often see growing on the tops of elm and other trees, has been thought to be propagated in this manner; yet, as it is often seen growing on the under side of the branch, and sometimes on a perpendicular shoot, it seems extraordinary how a seed could be deposited in that situation. However this be, there are many plants propagated from the depositions of birds; and some seeds are thought to thrive the better for first having undergone a kind of maceration in the stomach of the little animal, before it is voided on the ground.

There are some agreeable songsters in this tribe also; and those who like a loud piercing pipe, endued with great variety and perseverance, will be pleased most with their singing. The songsters of this class are the canary-bird, the linnet, the chaffinch, the gold-finch, the green-finch, the bull-finch, the brambling, the siskin, and the yellow-hammer. The note of these is not so generally pleasing as that of the soft-billed birds, but it usually holds longer; and, in a cage, these birds are more easily fed, and more hardy.*

* *Voices of Birds.*—We note birds in general more from their voices than their plumage; for the carols of spring may be heard involuntarily, but to observe the form and decoration of these creatures requires an attention not always given. Yet we have some native birds beautifully and conspicuously feathered; the gold-finch, the chaffinch, the wagtails, are all eminently adorned, and the fine gradations of sober browns in several others are very pleasing. Those sweet sounds, called the song of birds, proceed only from the male; and, with a few exceptions, only during the season of incubation. Hence the comparative quietness of our summer months, when this care is over, except from accidental causes, where a second nest is formed; few of our birds bringing up more than one brood in the season. The red-breast, blackbird, and thrush, in mild winters, may continually be heard,

This class of small birds, like all the greater, has its wanderers, that leave us for a season, and then return, to propagate, to sing, or to embellish the landscape here. Some of this smaller kind, indeed, are called *birds of passage*, that do not properly

and form exceptions to the general procedure of our British birds; and we have one little bird, the woodlark (*alauda arborea*), that, in the early parts of the autumnal months, delights us with its harmony, and its carols may be heard in the air commonly during the calm sunny mornings of this season. They have a softness and quietness, perfectly in unison with the sober, almost melancholy, stillness of the hour. The skylark also sings now, and its song is very sweet, full of harmony, cheerful as the blue sky and gladdening beam in which it circles and sports, and known and admired by all; but the voice of the woodlark is local—not so generally heard—from its softness, must almost be listened for, to be distinguished, and has not any pretensions to the hilarity of the former. This little bird sings likewise in the spring; but at that season, the contending songsters of the grove, and the variety of sound proceeding from every thing that has utterance, confuse and almost render inaudible the placid voice of the woodlark. It delights to fix its residence near little groves and copses, or quiet pastures, and is a very unobtrusive bird, not uniting in companies, but associating in its own little family-parties only, feeding in the woodlands on seeds and insects. Upon the approach of man, it crouches close to the ground, then suddenly darts away, as if for a distant flight, but settles again almost immediately. This lark will often continue its song, circle in the air, a scarcely visible speck, by the hour together; and the vast distance from which its voice reaches us in a calm day is almost incredible. In the scale of comparison, it stands immediately below the nightingale in melody and plaintiveness; but compass of voice is given to the linnet, a bird of very inferior powers. The strength of the larynx and of the muscles of the throat in birds is infinitely greater than in the human race. The loudest shout of the peasant is but a feeble cry, compared with that of the golden-eyed duck, the wild goose, or even this lark. The sweet song of this poor little bird, with a fate like that of the nightingale, renders it an object of capture and confinement, which few of them comparatively survive. I have known our country bird-catchers take them by a very simple but effectual method. Watching them to the ground, the wings of a hawk, or of the brown owl stretched out, are drawn against the current of air by a string, as a paper kite, and made to flutter and vibrate like a kestrel over the place where the woodlark has lodged; which so intimidates the bird, that it remains crouching and motionless as a stone on the ground; a hand net is brought over it, and it is caught.

From various little scraps of intelligence scattered through the sacred and ancient writings, it appears certain, as it was reasonable to conclude, that the notes now used by birds, and the voices of animals are the same as uttered by their earliest progenitors. The language of man, without any reference to the confusion accomplished at Babel, has been broken into innumerable dialects, created or compounded as his wants occurred, or his ideas prompted; or obtained by intercourse with others, as mental enlargement or novelty necessitated new words to express new sentiments. Could we

come under that denomination ; for though they disappear in one place they never leave the kingdom, but are seen somewhere else. But there are many among them that take longer flights, and go to a region colder or warmer, as it suits their con-

find a people from Japan or the Pole, whose progress in mind has been stationary, without increase of idea, from national prejudice or impossibility of communication with others, we probably should find little or no alteration in the original language of that people ; so, by analogy of reasoning the animal having no idea to prompt, no new want to express, no converse with others, (for a note caught and uttered merely is like a boy mocking the cuckoo,) so no new language is acquired. With civilized man, every thing is progressive ; with animals, where there is no mind, all is stationary. Even the voice of one species of birds, except in particular cases, seems not to be attended to by another species. That peculiar call of the female cuckoo, which assembles so many contending lovers, and all the various amatorial and caressing language of others, excites no influence generally, that I am aware of ; with all but the individual species it is a dialect unknown. I know but one note which animals make use of, that seems of universal comprehension, and this is the signal of danger. The instant that it is uttered, we hear the whole flock, though composed of various species, repeat a separate moan, and away they all scuttle into the bushes for safety. The reiterated "twink twink" of the chaffinch is known by every little bird as information of some prowling cat or weasel. Some give the maternal hush to their young, and mount to inquire into the jeopardy announced. The wren, that tells of perils from the hedge, soon collects about her all the various inquisitive species within hearing, to survey and ascertain the object, and add their separate fears. The swallow, that shrieking darts in devious flight through the air when a hawk appears, not only calls up all the hirundines of the village, but is instantly understood by every finch and sparrow, and its warning attended to. As nature, in all her ordinations, had a fixed design and fore-knowledge, it may be that each species had a separate voice assigned it, that each might continue as created, distinct and unmixed : and the very few deviations and admixtures that have taken place, considering the lapse of time, association, and opportunity, united with the prohibition of continuing accidental deviations, are very remarkable, and indicate a cause and original motive. That some of the notes of birds are as language designed to convey a meaning, is obvious from the very different sounds uttered by these creatures at particular periods : the spring voices become changed as summer advances, and the requirements of the early season have ceased ; the summer excitements, monitions, informations, are not needed in autumn, and the notes conveying such intelligences are no longer heard. The periodical calls of animals, croaking of frogs, &c., afford the same reasons for concluding that the sound of their voices by elevation, depression, or modulation, conveys intelligence equivalent to an uttered sentence. The voices of birds seem applicable, in most instances, to the immediate necessities of their condition ; such as the sexual call, the invitation to unite when dispersed, the moan of danger, the shriek of alarm, the notice of food. But there are other notes, the designs and motives of which are not so obvious. One sex only is gifted with the power of sing-

stitutions. The fieldfare and the red-wing breed pass their summers in Norway, and other cold countries, and are tempted hither to our mild winters, and to those various berries which then abound with us, and make their principal food. The haw-

ing, for the purpose, as Buffon supposed, of cheering his mate during the period of incubation; but this idea, gallant as it is, has such slight foundation in probability, that it needs no confutation: and after all, perhaps, we must conclude, that listened to, admired, and pleasing, as the voices of many birds are, either for their intrinsic melody, or from association, we are uncertain what they express, or the object of their song. The singing of most birds seems entirely a spontaneous effusion produced by no exertion, or occasioning no lassitude in muscle, or relaxation of the parts of action. In certain seasons and weather, the nightingale sings all day, and most part of the night; and we never observe that the powers of song are weaker, or that the notes become harsh and untunable, after all these hours of practice. The song-thrush, in a mild, moist April, will commence his tune early in the morning, pipe unceasingly through the day, yet, at the close of eve, when he retires to rest, there is no obvious decay of his musical powers, or any sensible effort required to continue his harmony to the last. Birds of one species sing in general very like each other, with different degrees of execution. Some counties may produce finer songsters, but without great variation in the notes. In the thrush, however, it is remarkable, that there seems to be no regular notes, each individual piping a voluntary of his own. Their voices may always be distinguished amid the choristers of the copse, yet some one performer will more particularly engage attention by a peculiar modulation or tune; and should several stations of these birds be visited in the same morning, few or none probably will be found to preserve the same round of notes; whatever is uttered seeming the effusion of the moment. At times a strain will break out perfectly unlike any preceding utterance, and we may wait a long time without noticing any repetition of it. During one spring, an individual song-thrush frequenting a favourite copse, after a certain round of tune, trilled out most regularly some notes that conveyed so clearly the words, lady-bird! lady-bird! that every one remarked the resemblance. He survived the winter, and in the ensuing season, the lady-bird! lady-bird! was still the burden of our evening song; it then ceased, and we never heard this pretty modulation more. Though merely an occasional strain, yet I have noticed it elsewhere—it thus appearing to be a favourite utterance. Harsh, strained, and tense, as the notes of this bird are, yet they are pleasing from their variety. The voice of the black-bird is infinitely more mellow, but has much less variety, compass, or execution; and he too commences his carols with the morning light, persevering from hour to hour without effort, or any sensible faltering of voice. The cuckoo wearies us throughout some long May morning with the unceasing monotony of its song, and though there are others as vociferous, yet it is the only bird I know that seems to suffer from the use of the organs of voice. Little exertion as the few notes it makes use of seem to require, yet, by the middle or end of June, it loses its utterance, becomes hoarse, and ceases from any further essay of it. The croaking of the nightingale in June, or the end of May, is not apparently occasioned by the loss of voice,

finch and the crossbill are uncertain visitants, and have no stated times of migration. Swallows of every species disappear at the approach of winter. The nightingale, the black-cap, the fly-catcher, the willow-wren, the wheat-ear, the whin-chat, and the stone-chatter leave us long before the approach of winter; while the siskin and the linnet only forsake us when our winters are more than usually severe. All the rest of the smaller tribe never quit this country: but support the severest rigours of the climate.

Yet it must not be supposed that the manners of our little birds prevail in all other countries; and that such kinds as are stationary with us never wander in other parts of Europe; on the contrary, it happens that many of those kinds which are birds of passage in England are seen, in other places, never to depart, but to make one country their fixed residence the whole year round. It is also frequent, that some birds, which with us are faithful residents, in other kingdoms put on the nature of birds of passage, and disappear for a season.

The swallow, that with us is particularly remarked for being a bird of passage in Upper Egypt, and in the island of Java, breeds and continues the whole year, without ever disappearing. Larks, that remain with us the year throughout, are birds of passage in Sweden; and forsake that climate in winter to return again with the returning spring. The chaffinch, that with us is stationary, appears during the winter in Carolina and Virginia; but disappears totally in summer to breed in the northern regions. In Sweden, also, these little birds are seen returning, at the approach of spring, from the warmer climates, to propagate; which being accomplished by the latter end of autumn, the males and females separate; the males to continue among their native snows, the females to seek a warmer and gentler winter. On this occasion, they are seen in flocks, that darken all the air, without a single male among them, making their way into the more southern regions of Denmark, Germany, and Holland. In this Amazon-like retreat thousands fall by the way; some by fatigue, some by want; but the greatest number by the nets of

but a change of note, a change of object; his song ceases when his mate has hatched her brood; vigilance, anxiety, caution, now succeed to harmony, and his croak is the hush, the warning of danger or suspicion to the infant charge and the mother bird.—*Journal of a Naturalist.*

the fowler ; the taking them being one of the chief amusements among the gentry where they pass. In short, the change of country with all this little tribe, is rather a pilgrimage than a journey ; a migration rather of necessity than of choice.

Having thus given a general idea of the birds of this class, it will be proper to give some account of the most remarkable among them.

CHAP. II.

OF THE THRUSH, AND ITS AFFINITIES.*

WITH the Thrush we may rank the red-wing, the field-fare, the blackbird, the ring-ouzel, and the water-ouzel. These are the

* We shall here notice the British species of the Thrush genus. The thrush genus is divided by Temminck into two sections, viz. those that inhabit woods and thickets in the lower grounds ; and such as live solitary, in rocky and mountainous countries. The British species all belong to the first section.

The *Missel-thrush* is the largest of its tribe, and is indigenous in Great Britain ; but its distribution is not so extensive, nor locally so abundant as that of the song-thrush and black-bird. Except during the period of the production of its young, it is a bird of shy and retired habits, frequenting the outskirts of woods, or extensive pastures, where it feeds upon worms and other insects. During the winter, it lives chiefly upon the berries of the mistletoe and juniper, with those of the hawthorn, holly, and ivy. It possesses a very powerful note, and, in case of mild weather, its song is often heard as early as the month of January. It usually sings from the highest branch of some tall tree, continuing daily to serenade its mate during the time of incubation, but becomes silent as soon as the young birds are hatched. It is very courageous in the breeding season, attacking indiscriminately all other birds that approach its nest. When disturbed, or engaged in contest, it utters a harsh kind of scream. It seldom mingles with the other species of thrushes, but more frequently associates in small families during the winter, and which resort to extensive pasture and meadow lands. The place chosen for nidification is commonly the cleft of a tree, and the nest is formed externally of white moss and coarse grass, interwoven with wool, the whole being lined with the fine stalks of dead grasses. In this depository it lays four or five eggs, of a greenish-white, spotted, and speckled with chestnut-brown and clove-brown.

The *Field-fare*.—The summer retreat, or polar migration of this bird, being farther towards the north than the utmost latitude of our island, it becomes a periodical visitant with us, as a return to warmer latitudes on the approach of autumn, or after it has performed the duties attendant on

largest of the sparrow-kind, and may be distinguished from all others of this class, as well by their size, which is well known, as by their bills, which are a little bending at the point; a small notch near the end of the upper chap; and the outmost toe ad-

the propagation of its species. Of all our winter visitants, it is the latest in its arrival, seldom reaching these shores before the latter part of November. As its first appearance is so much later than that of its fellows in migration, so also is its departure in the spring; flocks of these birds remaining on our coasts as late as the latter part of May, or the first week of June. During its abode with us, it continues in large flocks, and, as long as the weather remains mild, frequents the meadow and pasture grounds, feeding upon slugs, worms, and the larvæ of insects. In severe frosts, and when the ground is covered with snow, it resorts to the hedges, and to small plantations, where it subsists upon the berries of the hawthorn, holly, mountain-ash, and some others. It is a bird of shy disposition, and, unless pressed by hunger, and reduced by want, will not allow of any near approach to it. Highly as the flesh of the field-fare was prized by the Romans, it does not exceed in flavour that of the mistletoe thrush, and the others of its tribe, possessing also a bitterness from which some of them are free. This bird builds in pine or fir trees, in Norway, Sweden, Lapland, and other Northern countries, laying from three to five eggs, of a pale bluish-green colour, spotted with reddish-brown.

Song-thrush or *Mavis*.—This well known songster, whose sweetly variable notes enliven our groves, from the commencement of spring to the close of summer, is indigenous in Britain, as the greater part of those bred in the island remain stationary through the whole year. But these our native birds are augmented by the visits of vast flocks, in the course of their autumnal journey from the more northern countries of Europe. These last generally make their appearance before the red-wing and field-fare, and, after recruiting their strength for a few days, move onward in a southerly direction. Like many of our other autumnal visitants, they arrive with a north, or north-east wind, plainly indicating the countries from whence they hold their progress. The thrushes which remain with us, never associate in flocks during the winter, like the two above-mentioned species, but continue dispersed throughout the country, haunting the thickets and hedges, where they find a supply of such berries as form their principal food, during the inclement season of the year. Upon the approach of very severe frosts, or falls of snow, they move from the interior of the country towards the sea-coast, where the influence of the sea-breeze, soon dissolving the snow, exposes a portion of ground sufficient to furnish them with a scanty subsistence. If the season should prove temperate, the male bird begins to pour forth his love-notes as early as the latter part of January, or the beginning of the month following. In March the pair commence nidification, and the first brood flies about the month of May.

The song-thrush is remarkable for the ingenuity of its nests. The interior of these nests is about the form and size of a large breakfast tea-cup, being as uniformly rounded, and though not polished, almost as smooth. For this little cup the parent birds lay a massive foundation of moss, chiefly the proliferous and the fern-leaved feather moss (*Hypnum proliferum* and

hering as far as the first joint of the middle toe. To this tribe may be also added the stare or starling, which, though with a flat bill, too much resembles these birds to be placed any where else.

H. filicinum), or any other which is sufficiently tufted. As the structure advances, the tufts of moss are brought into a rounded wall by means of grass stems, wheat-straw, or root, which are twined with it and with one another up to the brim of the cup, where a thicker band of the same materials is hooped round like the mouth of a basket. The rounded form of this frame-work is produced by the bird measuring it, at every step of the process, with its body, particularly the part extending from the thigh to the chin; and when any of the straws or other materials will not readily conform to this gauge, they are carefully glued into their proper place by means of saliva,—a circumstance which may be seen in many parts of the same nest if carefully examined. When the shell, or frame, as it may be called, is completed in this manner, the bird begins the interior masonry by spreading pellets of horse or cow dung on the basket work of moss and straw, beginning at the bottom, which is intended to be the thickest, and proceeding gradually from the central point. This material, however, is too dry to adhere of itself with sufficient firmness to the moss, and on this account it is always laid on with the saliva of the bird as a cement; yet it must require no little patience in the little architect to lay it on so very smoothly, with no other implement besides its narrow pointed bill. It would indeed puzzle any of our best workmen to work so uniformly smooth with such a tool; but from the frame being nicely prepared, and by using only small pellets at a time, which are spread out with the upper part of the bill, the work is rendered somewhat easier.

This wall being finished, the birds employ for the inner coating little short elips of rotten wood, chiefly that of the willow; and these are firmly glued on with the same salivary cement, while they are bruised flat at the same time, so as to correspond with the smoothness of the surface over which they are laid. This final coating, however, is seldom extended so high as the first, and neither of them are carried quite to the brim of the nest, the birds thinking it enough to bring their masonry near to the twisted band of grass, which forms the mouth. The whole wall, when finished, is not much thicker than pasteboard, and though hard, tough, and water-tight, is more warm and comfortable than at first view might appear, and admirably calculated for protecting the eggs or young from the bleak winds which prevail in the early part of the spring, when the song-thrush breeds.

The song-thrush usually builds in a thick bush, hawthorn, holly, silver-fir, furze, ivied tree, or sometimes in a dead fence, where the grass grows high; but it has occasionally been known to nestle within out-buildings. One is mentioned in the Magazine of Natural History, as having been built upon a harrow. A mill-wright "had been making a threshing-machine for a farmer in the neighbourhood of Pitlessie, in Fife, and had three of his men along with him. They wrought in a cart-shed, which they had used for some time as their workshop; and one morning they observed a mavis (thrush) enter the wide door of the shed, over their heads, and fly out again after a short while; and this she did two or three times, until their curiosity was

The missel-thrush is distinguished from all of the kind by its superior size, being much larger than any of them. It differs scarcely in any other respect from the throistle, except that the spots on the breast are larger. It builds its nest in bushes, or on the side of

excited to watch the motions of the birds more narrowly; for they began to suspect that the male and female were both implicated in this issue and entry. Upon the joists of the shed were placed along with some timber for agricultural purposes and old implements, two small harrows, used for grass-seeds, laid one above the other; and they were soon aware that their new companions were employed with all the diligence of their kind in making their nest in this singular situation. They had built it, he said, between one of the butts of the harrow and the adjoining tooth; and by that time, about seven o'clock, and an hour after he and his lads had commenced their work, the birds had made such progress, that they must have begun by the break of day. Of course, he did not fail to remark the future proceedings of his new friends. Their activity was incessant; and he noticed that they began to carry mortar (he said), which he and his companions well knew was for plastering the inside. Late in the same afternoon, and at six o'clock next morning, when the lads and he entered the shed, the first thing they did was to look at the mavis's nest, which they were surprised to find occupied by one of the birds, while the other plied its unwearied toil. At last the sitting bird, or hen, as they now called her, left the nest likewise; and he ordered one of the apprentices to climb the baulks, who called out that she had laid an egg; and this she had been compelled to do some time before the nest was finished; only plastering the bottom, which could not have been done so well afterwards. When all was finished, the cock took his share in the hatching; but he did not sit so long as the hen, and he often fed her while she was upon the nest. In thirteen days the young birds were out of the shells, which the old ones always carried off."

Grahame, in his *Birds of Scotland*, gives, as usual, a very exact account of the localities chosen by the song-thrush, though he is wrong in thinking the nest lined with loam.

"In the hazel bush or sloe is formed
The habitation of the wedded pair,
Sometimes below the never-fading leaves
Of ivy-close, that overtwisting binds,
And richly crowns, with clustered fruit of spring,
Some river rock, or nodding castle wall;
Sometimes beneath the jutting root of elm,
Or oak, among the sprigs, that overhang
A pebble chiding stream, the *loam-lined* house
Is fixed, well hid from ken of hovering hawk,
Or lurking beast, or school-boy's prowling eye."

Syme, on the other hand, says, the thrush "displays little ingenuity in concealing its nest; it is therefore easily found, and thence becomes an easy prey to boys, cats, and weasels. Both male and female are employed in constructing the nest, which is placed in a hedge or bush pretty near the

some tree, as all of this kind are found to do, and lays four or five eggs in the season. Its song is very fine, which it begins in spring, sitting on the summit of a high tree. It is the largest bird of all the feathered tribe that has music in its voice; the

ground. We have found them in hedges, thorn bushes, and amongst the under branches of spruce and silver firs. These last conceal it, for the branches must be lifted up or put aside before the nest can be discovered; but in hedges it is easily seen, as instinct compels the bird to build so early in spring, that the foliage has not time to conceal it."

Red-wing.—This species, like the field-fare, is a periodical visitant, and generally makes its appearance a few weeks prior to that bird, arriving upon our north-eastern coasts about the middle or latter part of October. During its residence here, it remains gregarious, and haunts the meadows and pastures, as long as open weather continues; on the approach of frost, repairing to woods and hedges, where the hawthorn, holly, and some other trees afford, by their berries, the necessary means of subsistence. Should the weather prove very severe, or a failure of food occur, they continue their migration southward, an instance of which happened in the winter of 1822. In the first storm of snow, which lasted for nearly three weeks, large flocks of field-fares and redwings were collected about the hedges, and on the outskirts of woods, where they lived upon the berries of the hawthorn, and which, fortunately for them, were in great abundance. This supply, however, rapidly decreased; but before its total failure, a few days of thaw intervened previous to the commencement of the second severe storm. Taking advantage of this change of weather, they were enabled to pursue a more extended southern migration, and scarcely an individual was afterwards seen in Northumberland. Montagu mentions, that, in the hard winter of 1799, vast numbers of these birds resorted to the west of England, where a sudden fall of snow deprived them of all food, and being previously too much reduced for farther travel to a warmer climate, thousands of them, as well as of field-fares, perished from starvation. The same accident occurred in the year 1814, the winter of which proved particularly fatal to the thrush tribe, to larks, and other small birds, as was evinced in the striking diminution of their numbers for some years afterwards. The habits of this bird are very similar to those of the other species.—It has a clear and melodious note, and its song, when in its native or summer residence, is said to be scarcely inferior to that of our common thrush. Upon the approach of spring it returns to the northern provinces of Europe, where it breeds, and passes the summer. It is very abundant in Sweden, Norway, Lapland, and Russia.—In these countries it inhabits the woods and thickets adjoining to low or marshy tracts, and builds in maple, birch, and other trees, laying from four to six eggs, of a bluish-green colour, marked with blackish-brown spots.—In addition to fruits and berries, it feeds upon insects and worms.

Black-bird.—This bird is well known as a native of the British Islands. It is of a shy and restless disposition, always anxious to escape from observation, and generally successful in that effort, as it hops with singular celerity through the closest hedges or thickets, and its presence is often only known by the note it utters on alarm. It never associates ostensibly, 1 re-

note of all greater birds being either screaming, chattering, or croaking. It feeds on insects, holly, and mistletoe-berries; and sometimes sends forth a very disagreeable scream when frightened or disturbed.

The blackbird, which in cold countries, and particularly upon the Alps, is sometimes seen all over white, is a beautiful and canorous bird, whistling all the spring and summer time with a note, at a distance, the most pleasing of all the grove. It is the deepest toned warbler of the woods; but it is rather unpleasant in a cage, being loud and deafening. It lays four or five bluish eggs, in a nest usually built at the stump of some old hawthorn, well plastered on the inside with clay, straw, and hair.

preferring a solitary life, which it passes in woods or in well inclosed situations, where the hedges afford it an abundant supply of provision for the winter.—It also feeds upon worms and insects, and like the thrush, is particularly fond of the *helix nemoralis*, to obtain the snail of which it pursues the same process as that bird. The notes of the blackbird are rich and full, but destitute of that varied power of melody which distinguishes the song of the common thrush.—It commences building its nest in March, or the beginning of April; and a thick bush or an ivy-clad tree, is usually the chosen situation. The nest is composed of moss, small sticks, and fibres of root, plastered with mud internally, and afterwards lined with fine dry grass. Here it deposits four or five eggs, of a bluish-green colour, blotched with darker variegations. Like the thrush, it is frequently kept in confinement, and may be taught to whistle a variety of tunes, as well as to imitate the human voice.

Ring-Ouzel.—The periodical visits of this bird to our coasts are contrary to others of its genus that migrate, viz. the field-fare, redwing, and common thrush; as it arrives in the *spring*, and immediately resorts to the mountainous districts of England and Scotland, preferring those of the most stony and barren nature. In these situations it breeds, and rears its young.—The nest is usually placed on some steep bank, supported by a projecting stunted bush, or a tuft of grass or heath; sometimes also in the cleft, or on the shelf of a rock. In form and texture it resembles that of the blackbird, and the eggs are very similar to those of the same bird, both in size and colour.—Its song, which it utters perched on the top of some stone or the summit of a rock, is confined to a few clear and powerful notes, not unlike those of the missel-thrush. Like most of its tribe, it is of a shy disposition, and does not readily admit of a near approach, except during the period when its nest contains unfledged young; at which time it most strenuously endeavours to divert the attention of the intruder by loud cries and feigned gestures. As autumn approaches, it quits its mountainous haunts, journeying southwards; and, about the latter part of October, leaves this kingdom for warmer climates, where it passes the winter. It is common in Sweden, France, and Germany; but according to Temminck, is very rare in Holland.

Pleasing, however, as this bird may be, the blue-bird, described by Bellonius, is in every respect far superior. This beautiful animal entirely resembles a blackbird in all but its blue colour. It lives in the highest parts of the Alps, and even there chooses the most craggy rocks and the most frightful precipices for its residence. As it is rarely caught, it is in high estimation even in the countries where it breeds, but still more valuable when carried from home. It not only whistles in the most delightful manner, but speaks with an articulate distinct voice. It is so docile, and observes all things with such diligence, that though waked at midnight by any of the family, it will speak and whistle at the word of command. Its colour, about the beginning of winter, from blue becomes black, which changes to its original hue on the first approaches of spring. It makes its nest in deep holes, in very high and inaccessible solitudes, and removes it not only from the accesses of man, but also hides it with surprising cunning from the shammoy and other wild beasts that might annoy its young.

The manner of taking this beautiful bird is said to be this. The fowlers, either by chance or by lying in wait, having found out the place where it builds, take with them a strong stilt or stake, such as the climbers of rocks make use of to assist them in their ascent. With the assistance of this, they mount where an indifferent spectator would think it impossible to ascend, covering their heads at the same time to ward off any danger of the falling of pebbles or stones from above. At length, with extreme toil and danger, having arrived at the nest, they draw it up from the hole in which it is usually buried, and cherish the young with an assiduity equal to the pains they took to obtain them. It produces for the most part five young, and never more; it seldom descends into the plain country, flies swifter than a blackbird, and uses the same food.

The fieldfare and the red-wing make but a short stay in this country. With us they are insipid tuneless birds, flying in flocks, and excessively watchful to preserve the general safety. All their season of music and pleasure is employed in the more northern climates, where they sing most delightfully, perched among the forests of maples, with which those countries abound. They build their nests in hedges; and lay six bluish-green eggs spotted with black.

The stare, distinguishable from the rest of this tribe by the glossy green of its feathers in some lights, and the purple in others, breeds in hollow trees, eaves of houses, towers, ruins, cliffs, and often in high rocks over the sea. It lays four or five eggs of a pale greenish ash-colour, and makes its nest of straw, small fibres of roots, and such like. Its voice is rougher than the rest of this kind; but what it wants in the melody of its note, it compensates by the facility with which it is taught to speak. In winter these birds assemble in vast flocks, and feed upon worms and insects. At the approach of spring they assemble in fields as if in consultation together, and for three or four days seem to take no nourishment: the greater part leave the country; the rest breed here, and bring up their young.*

* The Starling is widely dispersed through Great Britain, occurring as numerous in the Orkney and Shetland Isles as in the southern parts of the kingdom. In the autumnal and hyemal months, these birds gather in immense flocks, and are particularly abundant in the fenny parts of Nottinghamshire and Lincolnshire, where they roost among the reeds. Before they retire to rest, they perform various manœuvres in the air, the whole frequently describing rapid revolutions round a common centre.

This peculiar flight will sometimes continue for nearly half an hour, before they become finally settled for the night. Upon the approach of spring they pair, and spread themselves over the country.—They build in the holes of trees, or in ruinous buildings, making an artless nest of dry grass or hay, on which four or five eggs of a bluish-green colour, are deposited.—Their food principally consists of worms and other insects; but they also eat grain and various seeds. According to Mr Low, they feed in the Orkney Islands, during the severity of winter, upon the sea-louse (*Oniscus marinus*), which they obtain by turning over the small stones on the beach with their bills. The starling is a very imitative bird, and, when tamed, may be taught to articulate very distinctly, and to whistle tunes with much precision. In its wild state even, it may frequently be heard endeavouring to imitate the cries of different birds and animals. Its own peculiar notes are a shrill whistle, and chattering kind of noise. It is found throughout Europe; and the same species appears to be common also in Asia, as I have seen specimens from Nepal that are precisely similar.—The flight of the starling is smooth and even, without any saltatory motion, like the sparrow; and it walks with ease, like the lark, or wagtail, seldom or never using the hopping action of the thrush. These birds are often seen in company with rooks, pigeons, and jackdaws, and I have witnessed a small flock of them associating for a considerable time with a body of lapwings (*Vanellus cristatus*).

The red-winged starlings of America, though generally migratory in the States north of Maryland, are found during winter in immense flocks, sometimes associated with the purple grackles, and often by themselves, along the whole lower parts of Virginia, both Carolinas, Georgia, and Louisiana, particularly near the sea coast, and in the vicinity of large rice and corn fields. In the months of January and February, (says Wilson,) while passing through

To this tribe might be added above a hundred other birds of nearly the thrush size, and living like them upon fruit and berries. Words could not afford variety enough to describe all the beautiful tints that adorn the foreign birds of the thrush kind.

the former of these countries, I was frequently entertained with the aerial evolutions of these great bodies of starlings. Sometimes they appeared driving about like an enormous black cloud carried before the wind, varying its shape every moment. Sometimes suddenly rising from the fields around me with a noise like thunder ; while the glittering of innumerable wings of the brightest vermilion amid the black cloud they formed, produced on these occasions a very striking and splendid effect. Then descending like a torrent, and covering the branches of some detached grove, or clump of trees, the whole congregated multitude commenced one general concert or chorus, that I have plainly distinguished at the distance of more than two miles ; and, when listened to at the intermediate space of about a quarter of a mile, with a slight breeze of wind to swell and soften the flow of its cadences, was to me grand, and even sublime. The whole season of winter, that, with most birds, is past in struggling to sustain life in silent melancholy, is, with the red-wings, one continued carnival. The profuse gleanings of the old rice, corn, and buckwheat fields, supply them with abundant food, at once ready and nutritious ; and the intermediate time is spent either in aerial manœuvres, or in grand vocal performances, as if solicitous to supply the absence of all the tuneful summer tribes, and to cheer the dejected face of nature with their whole combined powers of harmony.

Before the beginning of September, these flocks have become numerous and formidable ; and the young ears of maize, or Indian corn, being then in their soft succulent, milky state, present a temptation that cannot be resisted. Reinforced by numerous and daily flocks from all parts of the interior, they pour down on the low countries in prodigious multitudes. Here they are seen, like vast clouds, wheeling and driving over the meadows and devoted corn fields, darkening the air with their numbers. Then commences the work of destruction on the corn, the husks of which, though composed of numerous envelopements of closely wrapt leaves, are soon completely or partially torn off ; while from all quarters myriads continue to pour down like a tempest, blackening half an acre at a time ; and, if not disturbed, repeat their depredations till little remains but the cob and the shrivelled skins of the grain ; what little is left of the tender ear, being exposed to the rains and weather, is generally much injured. All the attacks and havoc made at this time among them with the gun, and by the hawks,—several species of which are their constant attendants,—has little effect on the remainder. When the hawks make a sweep among them, they suddenly open on all sides, but rarely in time to disappoint them of their victims ; and, though repeatedly fired at, with mortal effect, they only remove from one field to an adjoining one, or to another quarter of the same inclosure. From dawn to nearly sunset, this open and daring devastation is carried on, under the eye of the proprietor ; and a farmer, who has any considerable extent of corn, would require half-a-dozen men at least, with guns, to guard it ; and even then, all their vigilance and activity would not prevent a good tithe of it from becoming the prey of the blackbirds. The Indians, who

The brilliant green of the emerald, the flaming red of the ruby, the purple of the amethyst, or the bright blue of the sapphire, could not, by the most artful combination, show any thing so truly lively or delightful to the sight, as the feathers of the chil-

usually plant their corn in one general field, keep the whole young boys of the village all day patrolling round and among it ; and each being furnished with bow and arrows, with which they are very expert, they generally contrive to destroy great numbers of them.

It must, however, be observed, that this scene of pillage is principally carried on in the low countries, not far from the sea-coast, or near the extensive flats that border our large rivers ; and is also chiefly confined to the months of August and September. After this period, the corn having acquired its hard shelly coat, and the seeds of the reeds or wild oats, with a profusion of other plants, that abound along the river shores, being now ripe, and in great abundance, they present a new and more extensive field for these marauding multitudes. The reeds also supply them with convenient roosting places, being often in almost unapproachable morasses ; and thither they repair every evening from all quarters of the country. In some places, however, when the reeds become dry, advantage is taken of this circumstance, to destroy these birds, by a party secretly approaching the place, under cover of a dark night, setting fire to the reeds in several places at once, which being soon enveloped in one general flame, the uproar among the blackbirds becomes universal ; and, by the light of the conflagration, they are shot down in vast numbers while hovering and screaming over the place. Sometimes straw is used for the same purpose, being previously strewed near the reeds and alder bushes, where they are known to roost, which being instantly set on fire, the consternation and havoc is prodigious ; and the party return by day to pick up the slaughtered game. About the first of November, they begin to move off towards the south ; though, near the sea coast, in the states of New Jersey and Delaware, they continue long after that period.

Such are the general manners and character of the red-winged starling ; but there remain some facts to be mentioned, no less authentic, and well deserving the consideration of its enemies, more especially, of those whose detestation of this species, would stop at nothing short of total extirpation.

It has been already stated, that they arrive in Pennsylvania late in March. Their general food at this season, as well as during the early part of summer, (for the crows and purple grackles are the principal pests in planting time,) consists of grub-worms, caterpillars, and various other larvæ, the silent, but deadly enemies of all vegetation, and whose secret and insidious attacks are more to be dreaded by the husbandman than the combined forces of the whole feathered tribes together. For these vermin, the starlings search with great diligence ; in the ground, at the roots of plants, in orchards, and meadows, as well as among buds, leaves, and blossoms ; and, from their known voracity, the multitudes of these insects which they destroy must be immense. Let me illustrate this by a short computation ; If we suppose each bird, on an average, to devour fifty of these larvæ in a day (a very moderate allowance), a single pair, in four months, the usual time such food is sought after, will consume upwards of twelve thousand. It is

coqui or the tautotal. Passing, therefore, over these beautiful, but little known, birds, I will only mention the American mock-bird, the favourite songster of a region, where the birds excel rather in the beauty of their plumage than the sweetness of their notes.

believed, that not less than a million pair of these birds are distributed over the whole extent of the United States in summer ; whose food being nearly the same, would swell the amount of vermin destroyed to twelve thousand millions. But the number of young birds may be fairly estimated at double that of their parents ; and, as these are constantly fed on larvæ for at least three weeks, making only the same allowance for them as for the old ones, their share would amount to four thousand two hundred millions ; making a grand total of sixteen thousand two hundred millions of noxious insects destroyed in the space of four months by this single species ! The combined ravages of such a hideous host of vermin would be sufficient to spread famine and desolation over a wide extent of the richest and best cultivated country on earth. All this, it may be said, is mere supposition. It is, however, supposition, founded on known and acknowledged facts. I have never dissected any of these birds in spring without receiving the most striking and satisfactory proofs of these facts ; and though, in a matter of this kind, it is impossible to ascertain precisely the amount of the benefits derived by agriculture from this, and many other species of our birds, yet in the present case, I cannot resist the belief, that the services of this species, in spring, are far more important and beneficial than the value of all that portion of corn which a careful and active farmer permits himself to lose by it.

The great range of country frequented by this bird extends from Mexico, on the south, to Labrador. Our late enterprising travellers across the continent to the Pacific Ocean, observed it numerous in several of the valleys at a great distance up the Missouri. When taken alive, or reared from the nest, it soon becomes familiar, sings frequently, bristling out its feathers, something in the manner of the cow-bunting. These notes, though not remarkably various, are very peculiar. The most common one resembles the syllables *conk-quer-ree* ; others, the shrill sounds produced by filing a saw ; some are more guttural ; and others remarkably clear. The usual note of both male and female is a single *chuck*. Instances have been produced where they have been taught to articulate several words distinctly ; and, contrary to what is observed of many birds, the male loses little of the brilliancy of his plumage by confinement.

A very remarkable trait of this bird is, the great difference of size between the male and the female ; the former being nearly two inches longer than the latter, and of proportionate magnitude. They are known by various names in the different States of the Union ; such as the *swamp blackbird*, *marsh blackbird*, *red-winged blackbird*, *corn*, or *maize thief*, *starling*, &c. Many of them have been carried from this to different parts of Europe ; and Edwards relates, that one of them, which had, no doubt, escaped from a cage, was shot in the neighbourhood of London ; and on being opened, its stomach was found to be filled with grub-worms, caterpillars, and beetles ; which Buffon seems to wonder at, as, "in their own country," he observes, "they feed exclusively on grain and maize."

This valuable bird does not seem to vie with the feathered inhabitants of that country in the beauty of its plumage, content with qualifications that endear it to mankind much more. It is but a plain bird to the eye, about the size of a thrush, of a white and grey colour, and a reddish bill. It is possessed not only of its own natural notes, which are musical and solemn, but it can assume the tone of every other animal in the wood, from the wolf to the raven. It seems even to sport itself in leading them astray. It will, at one time, allure the lesser birds with the call of their males, and then terrify them, when they have come near, with the screams of the eagle. There is no bird in the forest but it can mimic; and there is none that it has not, at times, deceived by its call. But, not like such as we usually see famed for mimicking with us, and which have no particular merit of their own, the mock-bird is ever surest to please when it is most itself. At those times it usually frequents the houses of the American planters; and, sitting all night on the chimney-top, pours forth the sweetest and the most various notes of any bird whatever. It would seem, if accounts be true, that the deficiency of most other song-birds in that country, is made up by this bird alone. They often build their nests in the fruit trees about houses, feed upon berries and other fruits, and are easily rendered domestic.*

* Of the *American song birds*, the Thrush genus seems to hold the chief rank, there being at least four species distinguished for their notes, among which is the Mocking-bird.

The Brown Thrush, sometimes called the Thrasher, or French Mocking bird, is the largest of the genus. His song is loud, emphatic, and full of variety; and, in a serene morning, when the wind is hushed, and before the "busy hum of men" begins, his voice may be distinguished at the distance of half a mile. His notes are not imitative, as some have erroneously supposed, but are wholly his own, and bear a very considerable resemblance to those of the European song thrush.

The Migratory, or Red-breasted, Thrush is an early songster, frequently commencing in March, before the snow has disappeared. One or two individuals usually taking the lead, by leaving the flock and perching on a stake or fence, to begin the prelude to the general concert. His song is not a bad imitation of the notes of the preceding, but, though inferior to the brown thrush in execution, it is more simple, and what is deficient in talent is amply made up in zealous enthusiasm; so that his song is universally liked; and he is often, on that account, kept in cages.

The Wood Thrush is a sweet and solitary songster. He chooses his station, at dawn, on the top of a tall tree, that rises from a low, thick, shaded

CHAP. III.

OF THE NIGHTINGALE, AND OTHER SOFT-BILLED SONG-BIRDS.

THE Nightingale is not only famous among the moderns for its singing, but almost every one of the ancients, who under-

part of the woods, piping his clear musical notes in a kind of ecstacy, the prelude or symphony to which strongly resembles the double-tonguing of a German flute, and sometimes the tinkling of a small bell. The whole song consists of five or six parts, the last note of each of which is in a tone that leaves the conclusion suspended. The finale is beautifully managed, with so fine an effect as to appear sweeter and mellowed at each successive repetition. Rival songsters, in different parts of a wood, seem to vie with each other in the softness of their tones, and the exquisite finish of their responses. During the heat of the day they are comparatively mute, but they renew their song at the close of day, and continue it long after sunset. Even in dark gloomy weather, during May and June, when scarce a chirp is heard from any other bird, the wood thrush sings from morn till night; and it may be said with justice, that the sadder the day the sweeter is his song. Those who have paid attention to the singing of birds know well that their voice, energy, and expression differ as widely as in man; and, agreeably to this remark, Wilson says he was so familiar with the notes of an individual wood thrush, that he could recognise him from all his fellows the moment he entered the woods.

The Mocking-bird seems to be the prince of all song birds, being altogether unrivalled in the extent and variety of his vocal powers; and, besides the fulness and melody of his original notes, he has the faculty of imitating the notes of all other birds, from the humming-bird to the eagle. Pennant tells us that he heard a caged one, in England, imitate the mewing of a cat and the creaking of a sign in high winds. The Hon. Daines Barrington says his pipe comes the nearest to our nightingale, of any bird he ever heard. The description, however, given by Wilson, in his own inimitable manner, as far excels Pennant and Barrington as the bird excels his fellow-songsters. Wilson tells that the ease, elegance, and rapidity of his movements, the animation of his eye, and the intelligence he displays in listening and laying up lessons, mark the peculiarity of his genius. His voice is full, strong, and musical, and capable of almost every modulation, from the clear mellow tones of the wood thrush to the savage scream of the bald eagle. In measure and accents he faithfully follows his originals, while in force and sweetness of expression he greatly improves upon them. In his native woods, on a dewy morning, his song rises above every competitor, for the others seem merely as inferior accompaniments. His own notes are bold and full, and varied seemingly beyond all limits. They consist of short expressions of two, three, or at most five or six, syllables, generally expressed with great emphasis and rapidity, and continued with undiminished ardour, for half an hour or an hour at a time. While singing, he expands his wings and his tail, glistening with white, keeping time to his own music, and the

took to describe beautiful nature, has contributed to raise its reputation. "The nightingale," says Pliny, "that, for fifteen days and nights, hid in the thickest shades, continues her note without intermission, deserves our attention and wonder. How

buoyant gaiety of his action is no less fascinating than his song. He sweeps round with enthusiastic ecstasy, he mounts and descends as his song swells or dies away; he bounds aloft, as Bartram says, with the celerity of an arrow, as if to recover or recal his very soul, expired in the last elevated strain. A bystander might suppose that the whole feathered tribes had assembled together on a trial of skill; each striving to produce his utmost effect, so perfect are his imitations. He often deceives the sportsman, and even birds themselves are sometimes imposed upon by this admirable mimic. In confinement he loses little of the power or energy of his song. He whistles for the dog; Caesar starts up, wags his tail, and runs to meet his master. He cries like a hurt chicken, and the hen hurries about, with feathers on end, to protect her injured brood. He repeats the tune taught him, though it be of considerable length, with great accuracy. He runs over the notes of the canary, and of the red bird, with such superior execution and effect, that the mortified songsters confess his triumph by their silence. His fondness for variety, some suppose to injure his song. His imitations of the brown thrush are often interrupted by the crowing of cocks; and his exquisite warblings after the blue bird, are mingled with the screaming of swallows, or the cackling of hens. During moonlight, both in the wild and tame state, he sings the whole night long. The hunters, in their night excursions, know that the moon is rising the instant they begin to hear his delightful solo. After Shakspeare, Barrington attributes in part the exquisiteness of the nightingale's song to the silence of the night; but if so, what are we to think of the bird which, in the open glare of day, overpowers and often silences all competition? His natural notes partake of a character similar to those of the brown thrush, but they are more sweet, more expressive, more varied, and uttered with greater rapidity.

The Yellow-breasted Chat naturally follows his superior in the art of mimicry. When his haunt is approached, he scolds the passenger in a great variety of odd and uncouth monosyllables, difficult to describe, but easily imitated so as to deceive the bird himself, and draw him after you to a good distance; in such cases his responses are constant and rapid, strongly expressive of anxiety and anger, and while the bird is always unseen, the voice shifts from place to place among the bushes, as if proceeding from a spirit. At first are heard short notes like the whistling of a duck's wings, beginning loud and rapid, and becoming lower and slower, till they end in detached notes. There succeeds something like the barking of young puppies, followed by a variety of guttural sounds, like those of some quadrupeds, and ending like the mewing of a cat, but much hoarser. All those are given with much vehemence, and in different keys, so as to appear sometimes at a great distance, and instantly again quite near you. In mild serene moonlight nights, it continues this ventriloquism all night, responding to its own echoes.

The song of the Baltimore Oriole is little less remarkable than his fine appearance, and the ingenuity with which he builds his nest. His notes

surprising that so great a voice can reside in so small a body. such perseverance in so minute an animal! With what a musical propriety are the sounds it produces modulated! The note at one time drawn out with a long breath, now stealing off into

consist of a clear mellow whistle, repeated at short intervals as he gleams among the branches. There is in it a certain wild plaintiveness and *naivete* extremely interesting. It is not uttered with rapidity, but with the pleasing tranquillity of a careless plough-boy, whistling for amusement. Since the streets of some of the American towns have been planted with Lombardy poplars, the orioles are constant visitors, chanting their native "wood notes wild," amid the din of coaches, wheelbarrows, and sometimes within a few yards of a bawling oysterwoman.

The notes of the Orchard Oriole are neither so full nor so mellow as those of the Baltimore, and are uttered more rapidly and gaily, while the bird is flying and caroling in a hurried manner, so that the ear can seldom catch all the tones. Among these there is one note especially which is very striking and interesting.

"Almost the whole genus of orioles, says Wilson, belong to America, and, with a few exceptions, build pensile nests. Few of them, however, equal the Baltimore oriole in the construction of these receptacles for their young, and in giving them, in such a superior degree, convenience, warmth, and security. For these purposes he generally fixes on the high bending extremities of the branches, fastening strong strings of hemp or flax round two forked twigs, corresponding to the intended width of the nest; with the same materials, mixed with quantities of loose tow, he interweaves or fabricates a strong firm kind of cloth, not unlike the substance of a hat in its raw state, forming it into a pouch of six or seven inches in depth, lining it substantially with various soft substances, well interwoven with the outward netting, and, lastly, finishes with a layer of horse hair; the whole being shaded from the sun and rain by a natural pent-house, or canopy of leaves. As to a hole being left in the side for the young to be fed and void their excrements through, as Pennant and others relate, it is certainly an error: I have never met with any thing of the kind in the nest of the Baltimore.

"Though birds of the same species have, generally speaking, a common form of building, yet, contrary to the usually received opinion, they do not build exactly in the same manner. As much difference will be found in the style, neatness, and finishing of the nests of the Baltimores, as in their voices. Some appear far superior workmen to others: and probably age may improve them in this, as it does in their colours. I have a number of their nests now before me, all completed, and with eggs. One of these, the neatest, is in the form of a cylinder, of five inches diameter, and seven inches in depth, rounded at bottom. The opening at top is narrowed, by a horizontal covering, to two inches and a half in diameter. The materials are flax, hemp, tow, hair, and wool, woven into a complete cloth; the whole tightly sewed through and through with long horse hairs, several of which measure two feet in length. The bottom is composed of thick tufts of cow hair, sewed also with strong horse hair. This nest was hung on the extremity of the horizontal branch of an apple tree, fronting the southeast, was visible a hundred yards off, though sheltered from the sun; and was the

a different cadence, now interrupted by a break, then changing into a new note by an unexpected transition ; now seeming to renew the same strain, then deceiving expectation ! She sometimes seems to murmur within herself ; full, deep, sharp, swift,

work of a very beautiful and perfect bird. The eggs are five, white, slightly tinged with flesh colour, marked on the greater end with purple dots, and on the other parts with long hair-like lines, intersecting each other in a variety of directions. I am thus minute in these particulars, from a wish to point out the specific difference between the true and bastard Baltimore, which Dr Latham, and some others, suspect to be only the same bird in different stages of colour.

“ So solicitous is the Baltimore to procure proper materials for his nest, that, in the season of building, the women in the country are under the necessity of narrowly watching their thread that may chance to be out bleaching, and the farmer to secure his young grafts ; as the Baltimore, finding the former, and the strings which tie the latter, so well adapted for his purpose, frequently carries off both ; or, should the one be over heavy, and the other too firmly tied, he will tug at them a considerable time before he gives up the attempt. Skeins of silk and hanks of thread have been often found, after the leaves were fallen, hanging round the Baltimore's nest ; but so woven up, and entangled, as to be entirely irreclaimable. Before the introduction of Europeans, no such material could have been obtained here ; but, with the sagacity of a good architect, he has improved this circumstance to his advantage ; and the strongest and best materials are uniformly found in those parts by which the whole is supported.

“ Their principal food consists of caterpillars, beetles, and bugs, particularly one of a brilliant glossy green, fragments of which I have almost always found in the stomach, and sometimes these only.”

The Virginian Nightingale, Red Bird, or Cardinal Grosbeak, has great clearness, variety, and melody in his notes, many of which resemble the higher notes of a fife, and are nearly as loud. He sings from March till September, and begins early in the dawn, repeating a favourite stanza twenty or thirty times successively, and often for a whole morning together, till, like a good story too frequently repeated, it becomes quite tiresome. He is very sprightly, and full of vivacity ; yet his notes are much inferior to those of the wood, or even of the brown, thrush.

Another bird of this genus, the Pine Grosbeak, sings extremely clear, mellow, and sweet, though not so loud as birds of its size generally do. A tame one sung, during the months of May and June, with much enthusiasm, for whole mornings together ; and it acquired several notes of the Virginian nightingale, one of which hung near it.

The American Goldfinch, or Yellow Bird, sings very much like the European goldfinch ; but so weakly, that, even when perched over your head, the notes appear to come from a distance. In a cage he sings with great energy and animation. They are migratory birds ; and, when they arrive in spring, great numbers of them assemble on the same tree, to bask and dress themselves in the morning sun, singing at the same time, in concert, most delightfully, for half an hour together.

The Indigo Bird is fond of perching on fences about road-sides, and is a

drawling, trembling; now at the top, the middle, and the bottom of the scale! In short, in that little bill seems to reside all the melody which man has vainly laboured to bring from a variety of musical instruments. Some even seem to be possessed

vigorous and pretty good songster; mounting to the tops of the highest trees, and chanting for half an hour at a time. His song is a repetition of short notes, commencing loud and rapid, and falling by imperceptible gradations, till they seem hardly articulate, as if the little minstrel were quite exhausted. After a pause of about half a minute, he begins as before. Unlike most other birds, he chants with as much animation under the meridian sun in June as he does in a May morning.

The Song Sparrow is by far the earliest, sweetest, and most unwearied of the American song birds, sometimes continuing in song during the whole year. His note, or rather chant, is short but very sweet; somewhat resembling the beginning of the canary's song, frequently repeated for an hour together.

The whole song of the Black-throated Bunting consists of five, or rather two, notes; the first repeated twice and very slowly, the third thrice and rapidly, resembling *chip-chip, che-che-che*; of which ditty he is by no means parsimonious, but will continue it for hours successively. His manners are much like those of the European yellow-hammer, sitting, while he sings, on palings and low bushes.

The song of the Rice Bird is highly musical. Mounting and hovering on the wing, at a small height above the ground, he chants out a jingling melody of varied notes, as if half a dozen birds were singing together. Some idea may be formed of it, by striking the high keys of a piano-forte singly and quickly, making as many contrasts as possible, of high and low notes. Many of the tones are delightful, but the ear can with difficulty separate them. The general effect of the whole is good; and when ten or twelve are singing on the same tree, the concert is singularly pleasing.

The Scarlet Tanager has a pensive monotonous note, like *chip, churr*, which appears distant, though the bird be near. At times he has a more musical chant, something like that of the Baltimore oriole. He is none of the meanest of the American songsters, and his plumage renders him a striking ornament to the woodland scenery.

The note of the Summer Red Bird is a strong sonorous whistle, resembling a loose trill, or shake, on the notes of a fife, frequently repeated. That of the female is rather a kind of chattering, like a rapid enunciation of *chickey-tuckey-tuck*.

The Shore Lark has a single chirp, exactly like the European skylark; and it is reported that, in the country where it breeds, it sings well while mounting in the air.

The Maryland Yellow Throat has a twitter not disagreeable, somewhat like *whititlee*, thrice repeated; after which it pauses for half a minute, and begins again the same ditty.

The Red-eyed Flycatcher has a loud, lively, and energetic song, which is continued sometimes for an hour without intermission. The notes are, in short, emphatic bars of two, three, or four syllables. On listening to this bird, in his full ardour of song, it requires but little imagination to fancy

of a different song from the rest, and contend with each other with great ardour. The bird overcome is then seen only to discontinue its song with its life."

This most famous of the feathered tribe visits England in the beginning of April, and leaves us in August. It is found but in some of the southern parts of the country, being totally unknown in Scotland, Ireland, or North Wales. They frequent thick hedges and low coppices, and generally keep in the middle of the bush, so that they are rarely seen. They begin their song in the evening, and generally continue it for the whole night. For weeks together, if undisturbed, they sit upon the same tree; and Shakspeare rightly describes the nightingale sitting nightly in the same place, which I have frequently observed she seldom departs from.

From Pliny's description, we should be led to believe this

you hear the words "Tom Kelly! whip! Tom Kelly!" very distinctly; and hence Tom Kelly is the name given to the bird in the West Indies.

The White-eyed Flycatcher is a lively, active, sociable, little bird, possessing a strong voice for its size, and a great variety of notes, singing with much vivacity from April to September.

The Crested Titmouse possesses a remarkable variety in the tones of its voice, at one time not louder than the squeaking of a mouse, and in a moment after whistling aloud and clearly, as if calling a dog, and continuing this dog-call through the woods for half an hour at a time.

The Red-breasted Blue Bird has a soft, agreeable, and often repeated warble, uttered with opening and quivering wings. In his courtship he uses the tenderest expressions, and caresses his mate by sitting close by her, and singing his most endearing warblings. If a rival appears, he attacks him with fury, and, having driven him away, returns to pour out a song of triumph. In autumn his song changes to a simple plaintive note, which is heard in *open weather* all winter, though in severe weather the bird is never to be seen.

The Marsh Wren can scarcely be said to sing; but, when standing on the reedy banks of the Delaware or Schuylkill in June, you may hear a low crackling sound, as of air bubbles forcing their way through mud or boggy ground when it is trod upon. These are the singular notes of the marsh wren.

The notes of the House Wren are loud, sprightly, and tremulous, repeated every few seconds with great animation, with a trilling vivacity extremely agreeable. The European who judges of the song of this species by that of his own wren, will do great injustice to the American bird; for, in strength of tone and execution, the house wren is far superior. He may be heard on the tops of houses, even in towns singing with great energy.

From these twenty-four examples, it will be seen that the American song birds, so far from being inferior, are superior, to those of Europe, both in number and in the excellence of their music.

bird possessed of a persevering strain ; but though it is in fact so with the nightingale in Italy, yet, in our hedges in England, the little songstress is by no means so liberal of her music. Her note is soft, various, and interrupted ; she seldom holds it without a pause above the time that one can count twenty. The nightingale's pausing song would be the proper epithet for this bird's music with us, which is more pleasing than the warbling of any other bird, because it is heard at a time when all the rest are silent.

In the beginning of May, the nightingale prepares to make its nest, which is formed of the leaves of trees, straw and moss. The nest being very eagerly sought after, is as cunningly secreted ; so that but very few of them are found by the boys when they go upon these pursuits. It is built at the bottom of hedges, where the bushes are thickest and best covered. While the female continues sitting, the male at a good distance, but always within hearing, cheers the patient hour with his voice, and, by the short interruption of his song, often gives her warning of approaching danger. She lays four or five eggs ; of which but a part in our cold climate come to maturity.

The delicacy, or rather the fame, of this bird's music, has induced many to abridge its liberty, to be secured of its song. Indeed, the greatest part of what has been written concerning it in our country consists in directions how to manage it for domestic singing ; while the history of the bird is confined to dry receipts for fitting it for the cage. Its song, however, in captivity, is not so very alluring ; and the tyranny of taking it from those hedges where only it is most pleasing, still more depreciates its imprisoned efforts. Gesner assures us, that it is not only the most agreeable songster in a cage, but that it is possessed of a most admirable faculty of talking. He tells the following story in proof of his assertion, which he says was communicated to him by a friend. " Whilst I was at Ratisbon," says his correspondent, " I put up at an inn, the sign of the Golden Crown, where my host had three nightingales. What I am going to repeat is wonderful, almost incredible, and yet is true. The nightingales were placed separately, so that each was shut up by itself in a dark cage. It happened at that time, being the spring of the year, when those birds are wont to sing indefatigably, that I was so afflicted with the stone, that I could sleep but very little all

night. It was usual then about midnight, when there was no noise in the house, but all still, to hear the two nightingales jangling and talking with each other, and plainly imitating men's discourses. For my part I was almost astonished with wonder; for at this time, when all was quiet else, they held conference together, and repeated whatever they had heard among the guests by day. Those two of them that were most notable, and masters of this art, were scarcely ten feet distant from one another. The third hung more remote, so that I could not so well hear it as I lay a-bed. But it is wonderful to tell how those two provoked each other; and by answering, invited and drew one another to speak. Yet did they not confound their words, or talk both together, but rather utter them alternately and of course. Besides the daily discourse of the guests, they chaunted out two stories, which generally held them from midnight till morning; and that with such modulations and inflections, that no man could have taken to come from such little creatures. When I asked the host if they had been taught, or whether he observed their talking in the night, he answered, no: the same said the whole family. But I, who could not sleep for nights together, was perfectly sensible of their discourse. One of their stories was concerning the tapster and his wife, who refused to follow him to the wars, as he desired her: for the husband endeavoured to persuade his wife, as far as I understood by the birds, that he would leave his service in that inn, and go to the wars in hopes of plunder. But she refused to follow him, resolving to stay either at Ratisbon, or go to Nuremberg. There was a long and earnest contention between them; and all this dialogue the birds repeated. They even repeated the unseemly words which were cast out between them, and which ought rather to have been suppressed and kept a secret. But the birds, not knowing the difference between modest, immodest, honest, and filthy words, did out with them. The other story was concerning the war which the emperor was then threatening against the Protestants; which the birds probably heard from some of the generals that had conferences in the house. These things did they repeat in the night after twelve o'clock, when there was a deep silence. But in the day-time, for the most part they were silent, and seemed to do nothing but meditate and revolve with themselves upon what the guests conferred together as they

sat at table, or in their walks. I verily had never believed our Pliny writing so many wonderful things concerning these little creatures, had I not myself seen with my eyes, and heard them with my ears uttering such things as I have related. Neither yet can I of a sudden write all, or call to remembrance every particular that I have heard."

Such is the sagacity ascribed to the nightingale: it is but to have high reputation for any one quality, and the world is ready enough to give us fame for others to which we have very small pretensions. But there is a little bird, rather celebrated for its affection to mankind than its singing, which, however, in our climate, has the sweetest note of all others. The reader already perceives that I mean the RED-BREAST, the well-known friend of man, that is found in every hedge, and makes it vocal. The note of other birds is louder, and their inflexions more capricious, but this bird's voice is soft, tender, and well supported; and the more to be valued, as we enjoy it the greatest part of the winter. If the nightingale's song has been compared to the fiddle, the red-breast's voice has all the delicacy of the flute.

The red-breast, during the spring, haunts the wood, the grove, and the garden; it retires to the thickest and shadiest hedge-rows to breed in. But in winter it seems to become more domestic, and often to claim protection from man. Most of the soft-billed birds, the nightingale, the swallow, and the tit-mouse, leave us in the winter, when their insect food is no longer offered in plenty; but the red-breast continues with us the year round, and endeavours to support the famine of winter by chirping round the warm habitations of mankind; by coming into those shelters where the rigour of the season is artificially expelled, and where insects themselves are found in greater numbers, attracted by the same cause.

This bird breeds differently in different places: in some countries its nest is usually found in the crevice of some mossy bank, or at the foot of a hawthorn in hedge-rows; in others it chooses the thickest coverts, and hides its nest with oak leaves. The eggs are from four to five, of a dull white, with reddish streaks.

The Lark, whether the sky-lark, the wood, or the tit-lark,*

* The *Crested-Lark*, so called from the tuft with which its head is surmounted, is more bulky than the common lark. The bill is longer, and the wings and tail shorter. The wings, when folded, come to about half the

being all distinguishable from other little birds by the length of their heel, are louder in their song than either of the former, but not so pleasing. Indeed the music of every bird in captivity produces no very pleasing sensations; it is but the mirth of a

length of the tail. Feathers of a deep gray, with an edging of a lighter tint, cover the head, and upper part of the neck and body. On each side of the head is a band of reddish gray interrupted by the eye. The lower parts are of an obscure white, slightly tinted with reddish. The head is more thick, and the bill stronger, in the male than in the female, and it has more black on the breast. Both have the tongue wide, and a little forked.

Without being so common as the sky-lark, the crested-lark is pretty well spread throughout Europe, from Russia to Greece. It seems very doubtful, whether it is ever found in this country. It neither flies in flocks like the common lark, nor rises so high; and it continues in flight a longer time without alighting. It is by no means wild, nor does it dread the appearance of man, but commences to sing at his approach. The males sing infinitely better than the females, and their voice is very sweet and agreeable. During fine weather there is no cessation to their strains; but they become silent when the sky is overcast, and rain descends; they forget their gaiety and their music until the re-appearance of a brilliant sun re-animates their vivacity. They usually sing until the month of September. In captivity they also sing, and retain more readily the airs which are taught them from the bird-organ, than almost any other bird. But they seldom survive the loss of their liberty, and it requires much care and difficulty to preserve them any time in cages. The female places her nest on the ground, like the common species. She lays twice a year, about four or five eggs of a clear ash-colour, thick set with brown and blackish spots.

The *Wood-Lark* has been confounded by ornithologists with the crested lark, on account of the similar tuft with which its head is surmounted. It is smaller than the crested-lark, and the tuft can hardly be considered as a genuine one, being only a little greater elongation of the feathers of the head than in the common lark. The male is more frequently observed to elevate these than this female. This lark is found in Germany, France, Holland, Siberia, Poland, and Italy. When these birds perch they sing agreeably. They are heard to warble in great numbers together, in the commencement of spring; but when these assemblages disperse in amorous couples, the male then displays all his vocal powers, and produces very melodious sounds, especially after sunset. Thus he soothes and charms his mate, engaged in her maternal cares. From the time the young family bursts the shell, the sire takes his share in their education; but his songs are over, for the love which created his melody is at an end.

In many respects, both of habit and appearance, these birds differ from the sky-lark. They perch as well in trees as on the ground; but this they do only on the largest branches, where they are able to secure their hold with positively embracing the stems with their toes. The sky-lark forms its nest amongst grass or corn; and the wood-lark usually at the foot of a bush, near the bottom of a hedge, or in lays where the grass is rank and dry. The fabric is of loose texture, and constructed of withered herbs and fibrous roots, with a few horse-hairs in the inside.

little animal, insensible of its misfortunate situation : it is the landscape, the grove, the golden break of day, the contest upon the hawthorn, the fluttering from branch to branch, the soaring in the air, and the answering of its young, that gives the bird's

The *Short-toed Lark* is met with in the Canaries, in the southern provinces of France, and especially in Champagne, where the species is remarkably numerous. These larks arrive in the last mentioned country about the end of April, and are universally found in dry and sandy situations. They have several broods, and the first takes place soon after their arrival. The nest is constructed on the ground, of few materials, principally the blades of dog's grass, and is usually found in a wheel-rut, or track of a horse's hoof. The eggs are three or four, gray in colour, and spotted with a brownish gray, which spots are more confluent towards the gross end. As soon as the young can manage for themselves, they quit the untilled lands of Champagne, unite in numerous bodies, and seek fresher abodes and oaten fields. They leave this province at the end of August, and do not return until the following spring. Morning and evening, all the males of the plain assemble, and, at a very elevated height in the air, produce a concert, which is heard very distinctly, even though the birds are out of sight. This song is more agreeable and melodious than that of the common lark. They seldom sing in the middle of the day, and never on the ground, but utter then a peculiar sort of cry. This lark can run with the rapidity of a field mouse, especially when disturbed, and on the point of taking to flight. All the larks are pulverating birds ; but this one is so particularly attached to powdering itself with dust, that, on being supplied with some in a state of captivity, it will immediately testify its joy by a little soft cry, frequently repeated, and by precipitate movements of the wings, and bristling of all the feathers. It will plunge instantly into sand or ashes, as other birds do into water, remains there a long time, wallowing in all sorts of ways, and does not come out of it until it is so covered with it, that its plumage is scarcely to be distinguished.

The *Clapper Lark* is of South Africa. It usually makes its nest in some small grass, and lays from four to five eggs, of a greenish gray. It seldom rises more than from fifteen to twenty feet above the ground, and makes a particular noise, occasioned by the precipitate motion of its wings, which is heard at a great distance. When in the season of its amours it rises to the height above-mentioned, it utters a cry resembling the syllables *pi-wit*, the last syllable of which is elongated during its descent. It descends with the wings closed, and in an oblique line to the earth, where it rests scarcely half a minute, and then rises again. It sings in the morning, in the evening at sun-set, and for most part of the night.

The *Red-backed Lark* chiefly delights in plains abounding with bushes. It perches readily on these, and even on the trees which are at the edges of woods. Its song is agreeable.

The *Alpine Lark* inhabits the most northern portions of the two continents. In both quarters of the globe these larks, whose flesh is wholesome food, though without flavour, like that of most American birds, quit their winter retreat in the early days of spring, to withdraw into the countries which are nearest to the pole, where in perfect security from the aggressions

song its true relish. These, united, improve each other, and raise the mind to a state of the highest, yet most harmless, exultation. Nothing can, in this situation of mind, be more pleasing than to see the lark warbling upon the wing; raising its note

of man, they may deliver themselves without disturbance to the education of their young families.

The *Calandre* is larger than the common lark, but yet has many points of resemblance to it, not only in conformation and colour, but also in habits and manners. Its voice is equally agreeable, but stronger; it possesses a similar levity of motion and disposition; it nestles in the same manner on ground, under a clump of tufted grass, and lays four or five eggs. It has a similar facility of counterfeiting perfectly the song of many birds, and the cries of some quadrupeds, but its species is less numerous. It is found in the south of France, particularly in Provence, where it is common, and generally reared on account of its song; it is also found in Italy and the island of Sardinia, where it passes the entire year. The calandres are not observed to congregate in flocks, but usually remain single; in autumn they grow very fat, and are then good eating; they are taken in nets, laid near the waters where they are accustomed to drink.

The *Sirli*, a species of lark, is remarkable for its long and arched beak. It is found in the southern parts of Africa, and even in Barbary, usually inhabiting the sandy downs; from its peculiar song, which it generally puts forth from some little eminence, its name is derived.

The *Double-crested Lark* is distinguished chiefly by the double crest, from which its name is derived.

The majority of the *Titmice*, particularly those which frequent woods, thickets, and orchards, are courageous, and even ferocious; they will attack the owl with greater boldness than any other bird, being always foremost in darting on him, and trying to pick out his eyes. They express their little rage and fury by the swelling of their plumes, by violent attitudes, and precipitate motions; they peck sharply the hand which holds them, strike it repeatedly with the bill, and seem by their cries to call others to their assistance, which usually attracts them in crowds, and produces abundant sport to the fowler, for a single individual can take them all. There are many traits of conformity in their manners and disposition with those of the crows, shrikes, and pies; they have the same appetite for flesh, and the same custom of tearing their food in pieces to eat it.

These birds being of a lively and active character, are incessantly in motion; they are continually fluttering from tree to tree, hopping from branch to branch, climbing up the trunk, crooking themselves to walls, and suspending themselves in all fashions, sometimes with the head downwards. Though fierce, they are social, seek out the company of their own species, and form little flocks, more or less numerous; and if any accident should separate them, they recall each other mutually, and are soon reunited. They then seek their food in common, visit the clefts of rocks and walls, and tear with their bills the lichens and the moss of trees, to find insects or their eggs. They also feed on seeds; but though in many species the bill is strong enough, they do not break them, like the bullfinches and linets; they place them under their claws, and pierce them with their bills.

as it soars, until it seems lost in the immense heights above us; the note continuing, the bird itself unseen; to see it then descending with a swell as it comes from the clouds, yet sinking by degrees as it approaches its nest, the spot where all its affections are centered, the spot that has prompted all this joy.

like the nuthatches, with which they sometimes seem to associate during the winter. If a nut be suspended at the end of a string, they will hook themselves to it, and follow all its oscillations without letting go, and keep incessantly picking at it. Such manœuvres indicate much strength in the muscles; it has accordingly been observed that the bill is moved by very robust and vigorous muscles and ligaments, as well as the neck, and that the cranium is remarkably thick. They will eat not only grains, but insects, as above hinted, and butterfly-eggs, and peck the growing buds. The largest species (the great titmouse) joins to its other aliments bees, and even little birds, if it finds them enfeebled by illness, or entangled in snares, but it usually eats only the head.

Almost all the species of titmice are very productive, even more so than any other birds, in proportion to their size; their brood is said sometimes to consist of eighteen or twenty eggs. Some make their nests in the trunks of trees, others on shrubs, and give it the form of a ball, of a volume greatly disproportioned to their size; some suspend it at the end of a branch, in reeds or rushes. The materials which they employ are small plants, little roots, moss, flax, cattle hair, wool, the down of plants, cotton, and feathers; they tend their numerous family with the most indefatigable zeal and activity, are very much attached to it, and defend it with courage against the birds which attack it. They rush on the enemy with such intrepidity as to force him to respect their weakness.

The titmice are extended over the old continent, from the north to the south of Europe, through Africa, India, and China: they are also found in North America, but are as yet unknown in the southern part of that continent. Within a few years, several have been discovered in New Holland.

Among the titmice, those which are most easily caught in snares, &c. are the great, the black, and blue-headed species; the crested, the long-tailed, the bearded, and the penduline are not so easily managed. There are plenty of modes employed, with success, for the destruction of these little birds, the details of which would involve but little interest for our readers. Those who keep bees are very sufficiently justified, however, in destroying the titmice, as the latter wage a very cruel war upon these useful insects, particularly when they have young ones.

The *Buntings* (*Emberiza*) are distinguished from other passerine birds, principally by their conical, short, and straight bill, and by the addition of a knob in the roof of the upper mandible, which is made use of by the bird as an anvil on which to break and comminute its food. This apparatus is sufficient to lead the observing naturalist *per saltem*, as it were, to the conclusion that this genus of birds must be granivorous. It is true, indeed, that very many birds are enabled to crack and open nuts and hard seeds, without the aid of that extra provision with which the buntings are furnished: and this is one of the countless instances which might be adduced to display the

The lark builds its nest upon the ground, beneath some turf that serves to hide and shelter it. The female lays four or five eggs, of a dusky hue in colour, somewhat like those of a plover. It is while she is sitting that the male thus usually entertains

various means employed by Nature to attain one and the same end. How different, for instance, are the means by which the several classes of animals attain the common object of locomotion, and how various are the modifications of those means in the respective genera. The buntings, however, do not feed exclusively on vegetable matter; like most of their order, they subsist also partially on insects and worms.

The *Yellow Bunting* (*E. Citrinella*). This common species, in our own country, is known to every one under the name of the yellow-hammer. The yellow on the crown of the head is sometimes replaced by olive-green: and this, as well as other occasional deviations from the ordinary gamboge yellow of this bird, would in all probability have induced the erroneous multiplication of species, had the yellow bunting and its incidents been less universally known. This bird builds in a careless manner, on the ground, or towards the bottom of a small bush. The exterior of the nest consists of straw, moss, dried leaves, and stalks; and within is a little wool. Notwithstanding the carelessness of its nidification, however, few birds display stronger attachment to the young and to their eggs, than this; so much so, as to be not unfrequently taken by the hand, on the nest, rather than abandon its offspring in time to save itself. The eggs are in general about five in number, and are whitish, with red streaks.

The *Foolish Bunting* frequents the warmer situations of Europe, and lives solitary in mountainous districts. It is said to have gained deservedly, its epithet, from the ease with which it falls into every kind of snare.

The *Cirl Bunting* may be considered a British species, as it is not uncommon in company with the yellow bunting and the chaffinch on the southern coast of Devonshire. A straggler has, indeed, been killed in Scotland.

The *Reed Bunting* (*E. Schaeniculus*) is about the size of the yellow bunting, and is common in this country. It constructs its nest in grass or furze, near the ground, and has been said to attach it to three or four reeds above the water, whence its name. The eggs are four or five in number, bluish white, spotted, and varied with brown. "I have now and then," says Dr Latham, "seen this bird in the hedges, or the high road; but the chief resort is near the water; and that it, among other things, feeds on the seeds of the reed, is clear, as I have found them in the stomach." Though not uncommon, they are not found in large flocks. Though this species is said to be the best songster of the genus, its musical pretensions seem by no means to be boasted of. It is perennial in this country, though said to migrate in other parts of Europe.

The *Common Bunting* (*E. Miliaria*). This species is rather larger than the yellow bunting, and is much less common here. While in France, they are merely occasional residents, and arrive there in the spring, from the south, shortly after the swallows, and quit that country again in the beginning of autumn, they are found here during the whole year, and congre-

her with his singing; and while he is risen to an imperceptible height, yet he still has his loved partner in his eye, nor once loses sight of the nest, either while he ascends or is descending. This harmony continues several months, beginning

gate in winter in large flocks, when they are frequently caught in numbers, and sold under the name of bunting larks, ebbs, or corn bunting. They nestle on or near the ground, have four dirty-white eggs, spotted and streaked with brown; and the young have a reddish tinge.

During incubation, the male is generally found perched on a branch not far distant from his mate, constantly uttering a tremulous kind of shriek, several times repeated, with short intervals. Their unavailing anxiety to protect their eggs and young, frequently leads to the spot where they are deposited, which the simple birds are so unwilling to forsake, and, in their anxiety, so easily betray.

The *Ortolan Bunting* (*E. Hortulana*) is never known to visit this country. This bird, whose flesh is very highly esteemed, and which is consequently much sought after, appears to be confined to the southern parts of Europe, where it is found at all seasons. All the individuals of the species are not, however, confined to one locality the whole year; for a few of them quit the south in the spring, and visit for a time the intermediate latitudes of Europe. Even these, however, do not breed in all the countries they visit, as their nests are said to be found only in Germany, and Lorraine and Burgundy, in France. It is commonly near the stem of the vines that they build their ill-constructed nest, in which the female deposits four or five eggs. In Lorraine, they are said to build in the corn fields.

When these birds first arrive in France, they are far from fat; but human ingenuity soon makes them fit for the table: they are fatted by inclosing a number of them in a dark chamber, in which is placed a lanthorn, surrounded plentifully with oats and millet. The darkness seems to have the effect of confining the whole attention of the birds to their favourite food, thus placed within view; and it is said they will thus die of suffocation from their own fat, if left entirely to themselves. Another mode is, by confining them in cages, which admit a little light only to the box containing the food. In this state, the ortolan bunting is said to be one of the most exquisite morsels known for the table.

Among the buntings, distinguished by an elongated claw to the thumb, is the *Snow Bunting*, as it is found in the northern parts of Great Britain, and is called in Scotland the snow flake. These birds appear there in large flocks, at the commencement of frost, and are feared by many as the harbingers of hard weather; they are about the size of the chaffinch, black above, with a white rump, crown, and forehead. They nestle in holes in rocks, and produce five white eggs, with dusky spots.

They are found in all the northern latitudes, as high as navigators have penetrated; nor is it at all apparent by what means they find food in these inhospitable regions. The higher the degree of latitude in which they are found, the whiter, as it appears, becomes their plumage; this tendency, which we have had frequent occasion to notice, among the mammalia, as well as in the present class, has led to the conclusion that there are many varieties of this species. It breeds in Greenland, visits this coun-

early in the spring on pairing. In winter they assemble in flocks, when their song forsakes them, and the bird-catchers destroy them in great numbers for the tables of the luxurious.

The black-cap and the wren, though so very diminutive, are yet prized by some for their singing. The former is called by some the mock nightingale; and the latter is admired for the loudness of its note, compared to the little body from whence it issues. It must be confessed, that this disproportion between the voice of a bird and its size, in some measure demands our wonder. Quadrupeds in this respect may be considered as mutes to them. The peacock is louder than the lion, and the rabbit is not so loud as the wren. But it must be considered, that birds are very differently formed; their lungs in some measure are extended through their whole body, while in quadrupeds they lie only in the breast. In birds there are a variety of cells which take in the air, and thus pour forth their contents at the little animal's command. The black-cap and the wren, therefore, are as respectable for their voices as they might be deemed inconsiderable for their size.*

try in harvest, and retires in spring. As the winter advances, it approaches the corn-yards, and feeds with the sparrows and finches. In Zetland it is called oat-fowl, from the preference which it gives to that kind of grain. Of the *Whidah Bunting* an account shall be given in a succeeding note.

* *The Black-Cap*.—This bird is somewhat above five inches in length. The upper mandible is of a dark horn colour; the under one a light blue, and the edges of both whitish: top of the head black; sides of the head and back of the neck ash colour; back and wings of an olive grey; belly and vent white: the legs are of a bluish colour, inclining to brown; the claws black. The head of the female is of a dull rust colour.

The black-cap visits us about the middle of April, and retires in September; it frequents gardens, and builds its nest near the ground: it is composed of dried grass, moss, and wool, and lined with hair and feathers. The female lays five eggs, of a pale reddish brown, sprinkled with spots of a darker colour. During the time of incubation the male attends the female, and sits by turns; he likewise procures her food, such as flies, worms, and insects. The black-cap sings sweetly, and so like the nightingale, that in Norfolk it is called the mock nightingale. Buffon says, that its airs are light and easy, and consist of a succession of modulations of small compass, not sweet, flexible, and blended. And our ingenious countryman, Mr White, observes that it has usually a full, deep, sweet, loud, and wild pipe; yet the strain is of short continuance, and its motions desultory. But when the bird sits calmly, and in earnest engages in song, it pours forth very sweet, but inward melody, and expresses great variety of sweet and gentle modulations, superior, perhaps, to any of our warblers, the nightingale excepted;

All these soft-billed birds, thus prized for their singing, are rendered domestic, and brought up with assiduity by such as are fond of their voices in a cage. The same method of treatment serves for all, as their food and their habits are nearly the same. The

and while it warbles, its throat is wonderfully distended. Black-caps feed chiefly on flies and insects, and not unfrequently on ivy and other berries.

The Wren.—The wren is found throughout Europe. Its nest is curiously constructed, being composed chiefly of moss, and lined with feathers; and in shape almost oval, with only one small entrance. This is generally found in some corner of an out-house, stack of wood, or hole in a wall, near our habitations; but when the wren builds in the woods, it is often in a bush near the ground, on the stump of a tree, or even with the ground. The female lays from ten to eighteen eggs. It is remarkable that the materials of the nest are generally adapted to the place where it is formed. If against a hay-rick, its exterior is composed of hay; if against the side of a tree clad with white lichens, it is covered with the same substance; and if built against a tree covered with green moss, or in a bank, its exterior always bears the same correspondence. The lining is invariably of feathers. The wren does not, as is usual with most other birds, begin the bottom of its nest first. When against a tree, its primary operation is to trace the outline, which is of an oval shape, upon the bark, and thus fasten it with equal strength to all parts. It then, in succession, closes the sides and top, leaving only a small hole for entrance. If the nest is placed under a bank, the top is first begun, and well secured in some small cavity; and by this the fabric is suspended.

The Golden-Crested Wren.—This is said to be the smallest bird found in this kingdom, not weighing more than three drachms, and has a slender, straight, black bill. It has an exceeding beautiful small row of feathers on the top of the head, of a gold or orange colour, which it has a power of drawing together, in such a manner as entirely to conceal the little crest, by laying the feathers all flat upon the head; and likewise to raise them at pleasure. The form of them is long, as they take their rise from the base of the bill, and extend themselves to the back of the head, on each of which there runs a black line. The eyes are encircled with white; the sides of the neck of a fine, shining, yellowish green; the breast of a dusky white; the back is of a greenish colour, with a mixture of yellow. The quill feathers of the wings are of a dusky brown, with some of their edges yellow, others white; the tips of some of those next to the covert feathers are also white; and the tips of some of the coverts being of the same colour, form a white line across the wing. The tail is of a dusky colour, about an inch and a half long, with some of the edges of the feathers of a yellowish green; the feet and claws are pretty near of the same colour.

This is a beautiful, but rather rare bird; it is found in some of the woods near Oxford, also in Warwickshire, and several places in Wales; it has sometimes been seen in the southern parts of Scotland. The female lays six or seven very small eggs, not larger than peas, and feeds upon small insects.

The Willow-Wren.—This bird is little bigger than the common wren. The upper parts of the body are of a pale olive green; the under pale yel-

manner of taking and treating them, particularly the nightingale, is this: A nightingale's nest may be found by observing the place where the male sings, and then by sticking two or three meal-worms (a kind of maggot found in flour) on some neighbouring thorn,

low; and a streak of yellow passes over the eyes. The wings and tail are brown, edged with yellowish green; and the legs are yellowish. The willow-wren is not uncommon in many parts of England. It is migratory, visiting us annually about the middle of April, and taking its departure towards the end of September. The female constructs her nest in holes at the roots of trees, in hollows of dry banks, and other similar places. This is round, and not unlike that of the wren. The eggs are dusky white, and marked with reddish spots, and are five in number.

The *Wood-Wren* is a distinct species from the willow wren, with which it has been often confounded. It is distinguished by a more vivid plumage, and by frequenting natural woods and plantations. Among other birds belonging to this class may be mentioned the *Whitethroat*, the *Redtail*, and the *Greater* and *Lesser Pettychaps*. From the length of the surrounding notes, a particular description of these cannot be given.

The Pensile Warbler.—The pensile warbler is nearly five inches long. The bill is dusky; the head greyish black; and the back deep grey. Round the eye there is a white streak; and between that and the bill a range of yellow dots. The throat, neck, and breast, are yellow. The belly is white; and the sides of the neck and body are dotted with black spots. The wing coverts are white and black, in bands. The tail is dark grey, having the four outer feathers marked with large spots of white.

The sagacity displayed by this bird, in building and placing its nest, is truly remarkable. She does not fix it at the forking of the branches, as is usual with most other birds, but suspends it to binders hanging from the netting which she forms from tree to tree, especially those which fall from branches that hang over the rivers and deep ravines. The nest consists of dry blades of grass, the ribs of leaves, and exceedingly small roots, interwoven with the greatest art; it is fastened on, or rather is worked into, the pendant strings. It is, in fact, a small bed rolled into a ball, so thick and compact as to exclude the rain and it rocks in the wind without receiving any harm.

But the elements are not the only enemies against which this bird has to struggle; with wonderful sagacity it provides for the protection of its nest from other accidents. The opening is neither made on the top nor side of the nest, but at the bottom: nor is the entrance direct. After the bird has made its way into the vestibule, it must pass over a kind of partition, and through another aperture, before it descends to the abode of its family. This lodgment is round and soft, being lined with a species of lichen, which grows on the trees, or with the silky down of plants. The birds of this species have a very delicate song, which is continued throughout the year. They are natives of St Domingo, and some other of the West Indian Islands, where they feed chiefly upon insects and fruit.

The Suber Warbler.—The general shape of this bird is very elegant; and though it has no variety of colours it is possessed of considerable beauty. The upper part of the body is blackish-blue, and white beneath; the fea-

which when he sees he will infallibly bear away to his young. By listening, he then may be heard with the female chirping to the young ones while they are feeding. When the nest is found, if the young ones are not fledged enough to be taken, they must

thers of the head are long, lax, and turgid ; from the base of the bill to the middle of the head rise some beautiful blue feathers, which gives it a crested appearance : on the cheeks, and extending a considerable way down the neck, is a patch of this fine blue. The head, throat, and as far as the middle of the back, is of a deep black ; the bill and ocular bands are black ; two quill feathers are brown ; the tail is wedge-shaped ; and the legs of a pale brown. The female is brown above, white beneath ; and blue round the eyes. The superb warbler is five inches and a half long, and inhabits New Holland.

The *Chat* genus (which embraces the White Ear, the Stone Chat, and the Whin Chat) are all common in Europe, and frequent moors and other open wastes. They live solitary, or in pairs, and are wild in disposition. They run with much celerity, and their food consists of insects and worms, which they take chiefly upon the ground.

The *White Ear* is a handsome bird, but of a wild and timid nature. It is migratory, and arrives in Britain about March. On its appearance, it is esteemed a great delicacy, and numbers are annually caught for the table.

The *Stone Chat* is not migratory, but resides in Britain throughout the year. It generally selects the bottom of a whin or other bush for its nest, which is composed of moss or dry grass, lined with hair or feathers.

The *Whin chat* is somewhat larger than the stone chat. Its bill is black ; eyes hazel ; the feathers on the head, neck, and back, are black edged with rust colour ; a streak of white passes from the bill over each eye towards the hinder part of the head ; the cheeks are blackish ; chin white ; the breast is of a rust colour ; belly, vent, and thighs, pale buff ; each wing is crossed by a white mark near the shoulder, and another smaller near the bastard wing : part of the tail at the base is white, the rest black : the two middle feathers are wholly black, as are also the legs. The colours in general of the female are paler : the white streak over the eye, and the spots on the wings, are much less conspicuous ; and the cheeks, instead of being black, partake of the colours of the head. The whin chat is a solitary bird, frequenting heath and moors : it has no song, but only a simple unvaried note ; and in manners very much resembles the stonechat. It makes its nest very similar to that bird, and is generally seen in the same places during the summer months. The female lays five eggs of a lightish blue, very faintly sprinkled with small rusty spots. In the northern parts of England it appears in winter ; but its migration is only partial, as it is seen in some of the southern counties at the same season. It feeds on worms, flies, and insects. About the end of summer it is very fat, and at that time is said to be scarcely inferior in delicacy to the ortolan.

The Winter Fauvette.—The length of this well-known bird is somewhat more than five inches. Its bill is dark ; eyes hazel ; its general appearance is that of a dusky brown ; the feathers of the head, hinder part of the neck, back, wings, and tail, are edged with rusty or pale tawny brown, plain on the rump, rather clouded on the breast, and dashed on the sides with deeper shades of those colours ; the chin, throat, sides of the neck, and fore part

not be touched with the hands, for then the old ones will perceive it, and entice them away. They should not be taken till they are almost as full of feathers as the old ones; and, though they refuse their meat, yet, by opening their bills, you may give

of the breast, are of a dull bluish ash; the belly is of the same colour, but lighter; and the legs are reddish brown.

This bird is frequently seen in hedges, from which circumstance it derives one of its names; but it has no other relation to the sparrow than in the dinginess of its colours; in every other respect it differs entirely. It remains with us the whole year, and builds its nest near the ground; it is composed of moss and wool, and lined with hair. The female generally lays four or five eggs, of a uniform pale blue, without any spots; the young are hatched about the beginning of May. During the time of sitting, if a rat or other voracious animal come near the nest, the mother endeavours to divert it from the spot by a stratagem similar to that by which the partridge misleads the dog: she springs up, and flutters from spot to spot, by which means allures her enemy to a safe distance. In France the hedge-sparrow is rarely seen but in winter; it arrives generally in October, and departs in the spring for more northern regions, where it breeds. It is supposed to brave the rigours of winter in Sweden, and that it assumes the white plumage common in these severe climates in that season. Its song is little varied, but pleasant, especially in a season when all other warblers are silent: its usual strain is a sort of quivering, frequently repeating something like the following *tit-tit tititit*; from which, in some places, it is called the titling.

We may here notice the *Wagtails*, and *Pipits*.

Linnaeus comprised, under the denomination of *Motacilla*, a great number of birds with slender beaks, which have subsequently been divided into many genera. Bechstein has restrained the name to the wagtails proper, and budytes, which have more elevated limbs, and a longer tail than the rest, which they are continually lowering and raising. To such the name is more suitable than to any of the others. These birds have, moreover, as distinctive marks, certain scapulary feathers, which, extending to the end of the wing, give them some relation with the majority of the grallæ, and a tail composed of twelve rectrices nearly equal, with the two lateral, however, shorter than the eight intermediate quills. M. Cuvier has separated the wagtails proper from the budytes, a name derived from these latter birds being frequently seen amongst cattle. There is, however, very great analogy between the two sections. Perhaps our popular name of wagtail is the best to apply to both. The majority of the wagtails proper, and all the yellow wagtails, migrate from our northern countries at the approach of winter. The *boarula* on the contrary comes to pass the winter with us, and quits us when the others return. It is said to nestle in the German districts, which border on the French territories.

All these birds frequent meadows, and humid and marshy places, delighting in the borders of rivulets and rivers. Most of them have an undulating flight. They all run rather than walk; seldom perch, sing, or cry, during their flight; and construct their nest on the ground. That of the white wagtail is, however, sometimes found in a pile of wood, alongside of the

them two or three small bits at a time, which will make them soon grow tame, when they will feed themselves. They should be put, nest and all, into a little basket, which should be covered up warm: and they should be fed every two hours. Their food

banks, or in the hole of some wall whose base is washed by waters. Insects and small worms are their only aliment.

The *White Wagtails* (*M. Alba*) have a mode of life peculiar to themselves, and habits which distinguish them from budytes. They more readily approach man and his habitations, being fond of nestling in our neighbourhood. The others, more wild, inhabit the vicinity of the meadows and isolated herbaceous tracts. The former prefer stagnant waters, and the latter delight more in the borders of springs and running streams. Both run with the cattle, fly about the labourer, accompany him in his rural labours, and follow the plough in pursuit of small worms and larvæ, of which the newly turned furrows present a vast abundance. These insectivora, as useful as the fly-catchers and swallows, sometimes in the flight, but more frequently on the ground, amidst the herbage, seize upon the flies and gnats which have escaped the murderous bills of their other pursuers in the air. All the insect population of ponds and marshes constitute the nutriment of these volatiles. Their slight forms, little head, delicate feet, and long tail, perpetually balanced, cause them to be at once distinguished from all other birds with slender bills. They are therefore with great propriety formed into a small distinct family.

The *Motacilla Alba* is spread throughout Europe. It is even seen in Siberia, Kamschatka, Iceland, and the Feroe islands. It also inhabits Africa and India.

They form in autumn numerous flocks, which extend themselves through the fields, and withdraw, on the approach of evening, into osieries and willows which border canals and rivers. There they perform a noisy concert until night-fall. They depart in October, and often at this period they are heard passing in the air, sometimes at a very considerable height, and clamouring to each other incessantly. They do not, however, all migrate at this season, for some, though a very few, are occasionally to be met with. They then abound in Egypt, where the people, says Maillet, dry them in the sand, to preserve them for the purpose of food. They are also to be seen in Senegal at the same season; but, like the swallows and quails, they disappear from thence in spring to return to our climates, where they arrive at the end of March.

These birds possess the most astonishing gaiety and lightness. They appear in flying to rest upon their long outspread tail, as upon a broad oar which assists them to balance, spring, and perform a variety of evolutions in the air. During such sports, they are frequently heard to utter a little cry, lively, clear, and redoubled, which sounds like the syllables *guit, guit, guit, guit, guit*. They have also a soft and delicate song, which, in autumn, is reduced nearly to a murmur. The motion of their tail in flying is horizontal, but on the ground its position is perpendicular. As they delight in being upon the edge of the water, and often approach the washerwomen that are there, and seem to imitate with their tails the beating of the linen, the French have given them the name of *lavandieres*. They run lightly,

should be sheep's hearts, or other raw flesh-meat, chopped very fine, and all the strings, skins, and fat, taken away. But it should always be mixed with hard hen's eggs, upon which they will feed and thrive abundantly.

with very nimble steps upon the strand, and their long legs enable them even at times to enter the water to a small depth; but they are usually seen placed upon the stones and other little elevations about it.

The wagtail fixes its nest on the ground, under some roots, or below the turf; more frequently at the edge of waters, under some hollow bank, in elevated piles of wood alongside of rivers, and sometimes in heaps of stones. It is composed of dried herbs, small roots, and moss, connected carelessly together, and it is furnished inside with horse-hair, and feathers in abundance. The eggs are from four to six in number, of a bluish white, spotted with brown. There are usually two broods in the year. The male relieves the female during some hours in the day from the labour of incubation. The little ones are born covered with down. The father and mother defend them with much courage when they are approached. They meet the enemy, fly about to lead him to a distance, and often succeed in deceiving him by their manœuvres. If their young family is carried off, they fly about the head of the ravisher, turn incessantly, and continually utter piercing cries. It has been remarked that they attend very scrupulously to their young, keeping the nest extremely neat, and cleansing it carefully from all kinds of filth and ordure. They fling these out, and even carry them to a certain distance. This last precaution seems to be the result of a different instinct from that of mere cleanliness. It would seem to be done rather with the view of removing every indication of the proximity of their nest. Many other birds use a similar precaution, especially during the first ten or twelve days after the birth of the young. They even carry off the egg-shells when the young are evolved, and take them to a considerable distance. This habit is so innate in birds, that even canaries, which, in a long lapse of captivity, one would imagine, would leave it off, take the shell, the moment the little one comes out, and either transport it to the dung which is in that part of their cage the farthest from the nest, and conceal it there, or else break it to pieces and swallow it.

When the young family is in a state to fly, the parents still conduct and feed it, for three weeks or a month. This is a period in which they wage incessant war with the insect tribe, seizing and devouring them with the most extraordinary quickness, without appearing even to give themselves time to swallow them. They collect the little worms on the ground, gorgo themselves with the eggs of ants, and often make turns in the air, to catch the flies and gnats.

The wagtails are not distrustful, and are less fearful of man than of the birds of prey. They are not even much frightened by fire-arms, for, on being aimed at, they do not fly far, and frequently return and place themselves within a short distance of the fowler. They give into all kinds of snares which are laid for them, quite easily; but if taken when adult, they cannot be preserved in cages, but will die in four-and-twenty hours. For this purpose, they must be taken from the nest, and reared like the nightingales. Of the species which frequent Britain are the Pied Wagtail, the Grey or Water Wagtail, and the Yellow Wagtail.

They should then be put in cages like the nightingale's back cage, with a little straw or dry moss at the bottom; but when they are grown large, they should have ant's mould. They should be kept very clean, as indeed should all singing-birds whatsoever; for otherwise they will have the cramp, and perhaps the claws will drop off. In autumn they will sometimes abstain from their food for a fortnight, unless two or three meal-worms be given them twice or thrice a-week, or two or three spiders in a day; they must likewise have a little saffron in their water. Figs chopped small among their meat will help them to recover their flesh. When their legs are cramped, they should be anointed with fresh butter, or capon's fat, three or four days together. If they grow melancholy, put white sugar-candy into their water, and feed them with sheep's heart, giving them three or four meal-worms in a day, and a few ants with their eggs.

With regard to adult birds, those that are taken before the twenty-third of April are accounted the best, because after that they begin to pair. They usually haunt woods, coppices, and quickset hedges, where they may be taken in trap-cages baited with meal-worms. They should be placed as near the spot where the bird sings as possible; and before you fix the trap, turn up the earth twice the breadth of the cage, because they will there look for food. They are also taken with lime twigs, placing them upon the hedge where they usually sing; and there should be meal-worms stuck at proper places to draw them into the snare. After they are taken, their wings should be gently tied with thread, to prevent their beating themselves against the cage. This should be first hung in a private place, that the bird may not be disturbed; and it should be fed every two hours,

The *Pipits*, or *Field Larks*, have much analogy with those of the larks proper, though they differ in certain details of conformation. Like the larks, they sing in flying, and elevate themselves to a certain height in the air. They seek their nutriment, nestle, and sleep on the ground. Some frequent cultivated fields and meadows; others delight, during the summer season, in the borders of woods, in glades, in furze, and brushwood, thinly scattered; many prefer mountains, steep shores, rocks, and maritime pastures. Some few, in fine, inhabit, during summer, the little hills in sandy and stony situations, and during the after season, sojourn on the banks of rivers, and seek their food upon the strand. A very small number have the power of perching constantly upon trees. There is considerable trouble in distinguishing them specifically. Of those common to Britain are the *Rock* or *Shore Pipit*, the *Meadow Pipit* or *Tit*, and the *Tree Pipit*.

at farthest, with sheep's heart and egg minced very fine, mixing it with meal-worms. However, the first food must be worms, ants, caterpillars, and flies. You must, to feed the bird, take it in your hand, and open the bill with a stick made thick at one end, giving it the insects, or four or five bits of food as big as peas, to entice it to eat. Its common food should be mixed with ants, so that when the bird goes to pick up the ants, it may pick up some of that also. The nightingale, when caged, begins to sing about the latter end of November, and continues its song till June.

CHAP. IV.

OF THE CANARY-BIRD, AND OTHER HARD-BILLED SINGING BIRDS.

THE Canary-bird is now become so common, and has continued so long in a domestic state, that its native habits, as well as its native country, seem almost forgotten. Though by the name it appears that these birds came originally from the Canary Islands, yet we have it originally from Germany, where they are bred up in great numbers, and sold into different parts of Europe. At what period they were brought into Europe is not well known; but it is certain that about a century ago they were sold at very high prices, and kept only for the amusement of the great. They have since been multiplied in great abundance; and their price is diminished in proportion to their plenty.

In its native islands, a region equally noted for the beauty of its landscapes and the harmony of its groves, the canary-bird is of a dusky gray colour, and so different from those usually seen in Europe, that some have even doubted whether it be of the same species. With us, they have that variety of colouring usual in all domestic fowls; some white, some mottled, some beautifully shaded with green; but they are more esteemed for their note than their beauty, having a high piercing pipe, as indeed all those of the finch tribe have, continuing for some time in one breath without intermission, then raising it higher and higher by degrees, with great variety.

It is this that has rendered the Canary-bird, next to the night-ingale, the most celebrated songster; and as it is more easily reared than any of the soft-billed birds, and continues its song throughout the year, it is rather the most common in our houses. Rules, therefore, have been laid down, and copious instructions given, for breeding these birds in a domestic state; which, as a part of them may conduce towards the natural history of the bird, I will take leave to transcribe.*

* The Canary-bird is remarkable for its tractability and intelligence, as an instance of which the following anecdote may be given. A bird-catcher in Prussia, who had rendered himself famous for educating and calling forth the talents of the feathered tribe, had a Canary-bird, which was introduced by the owner to a large party at Cleves, to amuse them with his wonderful feats. The Canary being produced, the owner harangued him in the following manner, placing him upon his fore-finger, "Bijon, (jewel,) you are now in the presence of persons of great sagacity and honour; take heed, therefore, that you do not deceive the expectations they have conceived of you from the world's report. You have got laurels; beware of their withering: in a word, deport yourself like the bijou (the jewel) of Canary-birds, as you certainly are." All this time the bird seemed to listen; and, indeed, placed himself in the true attitude of attention. He sloped his head to the ear of the man, then distinctly nodded twice, when his master had left off speaking; and if ever nods were intelligible and promissory, these were of that nature. "That's good," said the master, pulling off his hat to the bird. "Now let us see if you are a Canary of honour. Give us a tune." The Canary sung. "Pshaw! that's too harsh: 'tis the note of a raven with a hoarseness upon him: something pathetic." The Canary whistled as if his little throat was changed to a lute. "Faster," says the man; "slower—very well—what a plague is this little foot about, and this little head? No wonder you are out, Mr Bijon, when you forget your time. That's a jewel: bravo! bravo! my little man!" All that he was ordered, or reminded of, did he to admiration. His head and foot beat time; humoured the variations both of tone and movement; and the sound was a just echo to the sense, according to the strictest laws of poetical, and (as it ought to be,) of musical composition. "Bravo! bravo!" re-echoed from all parts of the room. The musicians declared the Canary was a greater master of music than any of their band. "And do you not show your sense of this civility, sir?" cried the bird-catcher with an angry air. The Canary bowed most respectfully, to the great delight of the company. His next achievement was going through the martial exercises with a straw gun; after which, "My poor Bijon," said the owner, "thou hast had hard work, and must be a little weary: a few performances more, and thou shalt repose. Show the ladies to make a courtesy." The bird here crossed his taper legs, and sunk and rose with an ease and grace that would have put half our subscription assembly *belles* to the blush. "That's my fine bird! And now a bow, head and foot corresponding." Here the striplings for ten miles round London, might have blushed also. "Let us finish with a hornpipe, my brave little fellow: that's it; keep it up, keep it up." The actively, glee, spirit, and

In choosing the Canary-bird, those are best that appear with life and boldness, standing upright upon the perch like a sparrow-hawk, and not apt to be frightened at every thing that stirs. If its eyes look cheerful, and not drowsy, it is a sign of health; but, on the contrary, if it hides its head under the wing, and gathers its body up, these are symptoms of its being out of order. In choosing them, the melody of the song should also be minded; some will open with the notes of the nightingale, and, running through a variety of modulations, end like the tit-lark. Others will begin like the sky-lark, and, by a soft melodious turn, fall into the notes of the nightingale. These are lessons taught this bird in its domestic state, and generally taught it by others; but its native note is loud, shrill, piercing, and enough to deafen the hearers. There are persons who admire each of these songs, but the second is in the most general estimation.

Canary-birds sometimes breed all the year round; but they most usually begin to pair in April, and to breed in June and

accuracy with which this last order was obeyed, wound up the applause (in which all the musicians joined, as well with their instruments as their clappings,) to the highest pitch of admiration. Bijou himself seemed to feel the sacred thirst of fame, and shook his little plumes, and carolled an *To pœan*, that sounded like the conscious notes of victory. "Thou hast done all my biddings bravely," said the master, caressing his feathered servant; "now then take a nap, while I take thy place. Hereupon the Canary went into a counterfeit slumber, so like the effect of the popped god, first shutting one eye, then the other, then nodding, then dropping so much on one side, that the hands of several of the company were stretched out to save him from falling; and just as their hands approached his feathers suddenly recovering, and dropping as much on the other. At length sleep seemed to fix him in a steady posture; whereupon the owner took him from his finger, and laid him flat on the table, where the man assured us he would remain in a good sound sleep, while he himself had the honour to do his best to fill up the interval. Accordingly, after drinking a glass of wine, (in the progress of which he was interrupted by the Canary-bird springing suddenly up, to assert his right to a share, really putting his little bill into the glass, and then laying himself down to sleep again;) the owner called him a saucy fellow, and began to show off his own independent powers of entertaining, when a huge black cat, who had long been on the watch, sprung unobserved, from a corner, upon the table, seized the poor Canary in its mouth, and rushed out of the window in spite of opposition. And though the room was deserted in an instant, it was a vain pursuit; the life of the poor bird was gone; and its mangled body was brought in by the unfortunate owner, under such dismay, and accompanied by such looks and language, as would have awakened pity in a misanthrope

August. Those are said to be the best breeders that are produced between the English and the French.

Towards the latter end of March, a cock and a hen should be put together in a small cage, where they will peck at each other in the beginning, but will soon become thoroughly reconciled. The room where they are kept to breed should be so situated as to let the birds have the benefit of the morning sun, and the windows should be of wire, not glass, that they may enjoy the benefit of the air. The floor of the room should be kept clean, and sometimes there should be dry gravel or sand sifted upon it. There should also be two windows, one at each end, and several perches at proper distances for the birds to settle on, as they fly backwards and forwards. A tree in the middle of the room would be the most convenient to divert the birds, and sometimes to serve for building their nests upon.

In Germany they prepare a large room, and build it in the manner of a barn, being much longer than broad, with a square place at each end, and several holes to go into those square places. In those outlets they plant several sorts of trees, in which the birds take great delight to sing and breed. The bottom of the place they strew with sand, and upon it cast rape-seed, chick-weed, and groundsel, which the old birds feed upon while breeding. In the body of the house they put all sorts of stuff for building the nest, and brooms, one under the other, in all the corners, for the birds to build in. These they separate by partitions from each other, to prevent those above flying down upon, or otherwise incommoding, such as breed below. The light also is excluded, for no bird is fond of having light come to its nest.

With us the apparatus for breeding is less expensive ; a little breeding-cage sometimes suffices, but seldom any thing more extensive than a small room. While the birds are pairing, it is usual to feed them with soft meat ; that is, bread, maw-seed, a little scalded rape-seed, and near a third part of an egg. The room should be furnished with stuff for making their nests ; such as fine hay, wool, cotton, and hair. These materials should be thoroughly dry, and then mixed and tied together in such a manner that the birds may readily pull out what they want. This should be hung in a proper part of the room, and

the male will take his turn in building the nest, sitting upon the eggs, and feeding the young. They are generally two or three days in building their nests; the hen commonly lays five eggs; and in the space of fourteen days the young will be excluded. So prolific are these birds sometimes, that the female will be ready to hatch a second brood before the first are able to quit the nest. On these occasions she leaves the nest and the young, to provide herself with another to lay her new brood in. In the mean time the male, more faithful to the duties of his trust, breeds up the young left behind, and fits them for a state of independence.

When the young ones are excluded, the old ones should be supplied with a sufficiency of soft food every day, likewise with fresh greens, such as cabbage, lettuce, and chick-weed; in June, shepherd's purse; and in July and August, plantain. They are never to have groundsel after the young are excluded. With these different delicacies the old ones will take particular care to feed and bring up their young; but it is usual when they can feed themselves, to be taken from the nest and put into cages. Their meat then is the yolk of an egg boiled hard, with an equal quantity of fine bread, and a little scalded rape-seed: this must be bruised till it becomes fine, and then it may be mixed with a little maw-seed; after which blend all together; which is to be supplied them fresh every day.

The Canary-bird, by being kept in company with the linnet or the gold-finch, pairs and produces a mixed breed more like the Canary-bird, and resembling it chiefly in its song. Indeed, all this tribe with strong bills and piercing notes, and feeding upon grain, have the most strong similitude to each other, and may justly be supposed, as Mr Buffon imagines, to come from the same original. They all breed about the same time; they frequent the same vegetables; they build in the same hedges and trees; and are brought up for the cage with the same food and precautions. The linnet, the bulfinch, and the gold-finch, when we know the history of the Canary-bird, have scarcely any peculiarities that can attract our curiosity or require our care. The only art necessary with all those that have no very fine note, is to breed them up under some more pleasing harmonist.—The gold-finch learns a fine song from the

nightingale; and the linnet and bull-finch may be taught, forgetting the wild notes of nature, to whistle a long and regular tune.*

* The **GOLDFINCH** is one of the best known, and most beautiful of our native birds. From the earliest days of spring, the enchanting voice of the male begins to be heard; but it is in the month of May that it puts forth its sweetest strains. Perched on a tree of moderate height, particularly on a fruit-tree, of which these birds are very fond, it makes the orchard echo with its song, from the point of day to the setting of the sun. It continues thus until the month of August, with the interruption, however, occasioned by the care of its young: for such is its attachment, that at this period all its moments are absorbed by its paternal duties. It feeds the young with tender seeds, such as those of groundsel, lettuce, and other plants. It is said, that it also gives them caterpillars, small scarabæi, and other insects; but it appears more probable that the goldfinches are simply granivorous, like the linnet, the canary, &c. It is on this account that they nestle later than the sparrows, the buntings, and the chaffinches, which rear their young on insects, and do not disgorge the food for them. The goldfinch, when its young are more advanced in age, gives to them grains more difficult of digestion, but never without softening them in its crop, and disgorging them like the canaries. It is so much attached to its progeny, that if shut up with them in a cage, it will continue to take care of them at the very epoch when liberty is so dear to other birds, that few of them survive its loss. But to manage this properly with the gold-finch, it must receive abundance of groundsel, &c., and particularly the seed of the thistle, which is its favourite food, and from which its French name (*Chardonneret*) is derived. It is also sometimes called, in our language, the *Thistle-finch*. The fowlers, accordingly, who lay various snares for these birds, make use of thistle-seed as their bait.

Though the goldfinches do not construct their nests until the middle of spring, they have yet three broods, the last of which takes place in August. The young cannot suffice for themselves for some time, even after quitting the nest; accordingly there is much patience requisite to rear them artificially. The best are said to be those which are born in thorny bushes, and belong to the last brood. They are, it is said, more gay, and sing better than the others.

The goldfinch is very easily reconciled to captivity, and even becomes quite familiar. From its activity and docility it may be taught a wonderful degree of precision in its movements; it will counterfeit death, and perform a great variety of other movements with the greatest dexterity; it can be taught to fire a cracker, and draw up small cups, containing its food and drink. Some years ago, the *Sieur Roman* exhibited in this country the wonderful performances of his birds. These were goldfinches, linnets, and canary birds. One appeared dead, and was held up by the tail, or claw, without exhibiting any signs of life. A second stood on its head, with its claws in the air. A third imitated a Dutch milkmaid going to market, with pails on its shoulders. A fourth mimicked a Venetian girl, looking out at a window. A fifth appeared as a soldier, and mounted guard as a sentinel. The sixth was a caannonier, with a cap on its head, a

CHAP. V.

OF THE SWALLOW, AND ITS AFFINITIES.

AN idea of any one bird in the former classes will give us some tolerable conception of the rest. By knowing the linnet

firelock on its shoulder, and a firelock in its claw, and discharged a small cannon. The same bird also acted as if it had been wounded; it was wheeled in a little barrow, to convey it (as it were) to the hospital, after which it flew away, before the company. The seventh turned a kind of wind mill; and the last bird stood in the midst of some fire-works, which were discharged all round it, and this without exhibiting the least sign of fear.

The goldfinch, naturally active and laborious, is fond of occupation in its prison, and if it has not some poppy-heads, hemp-stalks, and those of lettuce, to pick, for the purpose of keeping it in action, it will remove every thing that it finds. A single gold-finch, in an aviary where canaries are hatching, if he be without a female, is sufficient to make all the broods fail; he will fight with the males, disturb the females, destroy the nests, and break the eggs. These birds, however, though so lively and petulant, live in peace with each other, excepting a few quarrels about the perch and their food; all of them try to get possession of the highest perch in the aviary, for the purpose of sleeping, and the first who obtains it will not suffer the others to approach. It is necessary to place all the perches at a similar height, to isolate each from the other, and make every one only of length sufficient for a single bird.

The mules from the goldfinch and canary are more robust than the latter, and live longer. Their song is also more brilliant; but Buffon says, that they imitate airs with difficulty. Others, on the contrary, pretend that they can very easily be taught by the bird-organ and flageolet. These mules resemble the male in the form of the bill, and the colours of the head and wings, and the female in the rest of the body. Some beautiful varieties result from this alliance. M. Vieillot once caught a mule, which he conceives was the produce of a male greenfinch and female goldfinch, judging from its size, colours, and song. This bird did not appear to be the result of any forced union; it always remained extremely wild, and by no means familiarised with the cage—a seeming confirmation of the last remark. It was brought, notwithstanding, to couple with a female canary; but nothing resulted from the union. Some, however, say that these females are not unproductive, and that the second generation insensibly approaches the characters of the male; but this second generation must be marvellously rare, for no authentic proof appears of its having ever been witnessed. These mules, however, pair very readily with each other or with canaries; but the eggs produced are not fecundated. The female mules construct their nests much better than the canaries; and are such excellent nurses that they may be frequently substituted for the others, when the latter are sick, or are bad mothers.

or the Canary bird, we have some notion of the manners of the gold-finch; by exhibiting the history of the nightingale, we see also that of the black-cap or the tit-mouse. But the swallow tribe seems to be entirely different from all the former; different

In autumn the goldfinches assemble together, live, during winter, in numerous flocks, and frequent those places where thistles and wild endive grow. During the severe cold, they shelter themselves in thick bushes; but they seldom recede far from the place where their food is found. Sometimes they mingle with other granivorous birds. Hempseed is the grain given to familiarize them with the cage; but it would be better to mingle millet and rape-seed with it, and to vary their aliment; thus the maladies might be avoided which attack them in captivity. This is a point not always properly attended to, for cage birds of all descriptions. Variation of food preserves them in good health, lengthens their days, and approximates them to their natural state.

The species of the goldfinch is extended throughout the whole of Europe nearly, and through some parts of Asia and Africa. It is found in Greece, where it bears the name of *karedreno*; though no migrating bird, properly speaking, it does not remain all the year round on all the islands of the Archipelago. It prefers the largest, and also the lands of the neighbouring continent, because it doubtless finds there more safe and agreeable retreats.

Few species present more varieties than this; besides those which proceed from forced alliances, there are others attributable to aliment, to age, and to domestication. There is one which is white where the others are red, namely, on the forehead and eyebrows, which colour also prevails on the top of the head, instead of black. On some the red is shaded with yellow, and the black appears through these colours. A goldfinch, with the head striped with red and yellow, has been found in America. One with the cap altogether black has but a few red spots on the forehead; the back and chest are of a yellowish brown; the iris yellowish, and the bill and feet flesh-colour. The whitish goldfinch has the tail and wings of an ashen brown, the upper and under parts of the body whitish, and the yellow of the wings pale. Some varieties are totally white, and others, among which are the handsomest races, have the head red and the wings bordered with yellow. On the bodies of many the tints are more or less mingled with white. Among the black goldfinches some are entirely black; others more or less varied with this colour. These last varieties are chiefly attributable to food, especially to the exclusive use of hempseed. Still the colours are not fixed, for goldfinches have been known to resume their primitive tints after the moulting; and some which were even totally black, to retain very fine feathers of that hue. These changes from one moulting to another become still more palpable when millet or other grain is substituted for hempseed.

The *Linnet*. Several naturalists have made two species of the linnet, properly so called, under the denominations of *grey* and *red*; others have no doubt of the identity of the red and grey linnet; and this opinion is confirmed by repeatedly multiplied and indefatigable observations. Both kinds, young and old, male and female, are grey in the back season, and resemble each other so much, that the sexes cannot be distinguished, except by the

in their form, different in their habits, and unlike in all the particulars of their history.

In this tribe is to be found the Goat-sucker, which may be styled a nocturnal swallow ; it is the largest of this kind, and is

white border on the primary alar quills, which is more broad and brilliant in the male than in the female. The red colour, which characterizes the male during summer, commences to appear towards the end of autumn ; but at this time it is tarnished, and occupies only the middle portion of the feathers, the extremity of which is of a reddish grey, so that it can only be perceived by raising them up. In proportion as the spring approaches, this colour extends and grows brighter, and towards the month of May becomes very brilliant in the male of two years old ; less pure and less extended in the bird of the first year ; and among the old ones it sometimes assumes an orange shade. Of course, the linnets which remain grey must be only females ; and it does not appear that any well-authenticated instance of a male of this hue at such periods has been found.

There is a great analogy between the linnet and the canary. Their habits and nature are extremely similar, and of all birds the linnet is that which most readily couples with the canary. Although the linnet is one of the commonest of our small granivorous birds, and though it preserves no brilliant colours in captivity to render its possession desirable, it is not less in request than the brilliant goldfinch and charming bullfinch. Its natural disposition is docile, and susceptible of attachment ; its song is agreeable, and the flexibility of its throat enables it to imitate with facility the different airs which it is attempted to be taught. It can even be taught to repeat many words distinctly, in different languages, and it pronounces them with an accent that would actually lead one to suppose that it understood their meaning. The tender attachment of which these birds are susceptible is astonishing ; so much so, that they often become troublesome in their caresses. They can perfectly well distinguish the persons who take care of them. They will come and perch upon them, overwhelm them with caresses, and even seem to express their affection by their looks. They can also imitate and unite to the varied modulations of their own voice, the strains of other birds, which they are in the habit of hearing. If a very young linnet be brought up with a chaffinch, a lark, or a nightingale, it will learn to sing like them. But it will in most cases totally lose its native song, and preserve nothing but its little cry of appeal. The linnets intended to be instructed in foreign strains, should be taken from the nest when the feathers begin to shoot. If taken adult, they will seldom profit by their lessons, though they will become both familiar and caressing. Different modes of instruction have been pointed out for them—such as whistling to them in the evening by candle light, taking care to articulate the notes distinctly. Sometimes, to put them in train, they are taken on the finger, a mirror is presented to them in which they think that they see another bird of their own species, which illusion is said to produce a sort of emulation, making them sing with more animation, and expediting their progress ; but these precautions are not absolutely necessary, for the best instructed linnets are often brought up by cobblers, who whistle to them without interrupting their work. It has been remarked of the linnets, and it is true of many

known by its tail, which is not forked, like that of the common swallow. It begins its flight at evening, and makes a loud singular noise, like the whur of a spinning-wheel. To this also belongs the House-swallow, which is too well known to need a

other singing birds, that they sing more in a small cage than a large one.

This bird lives a long time in captivity, if well taken care of. Sonnini quotes an instance of one that lived forty years, and might have lived longer had it not perished by accident. This was a bird of the most extraordinary amiableness and docility. It was in the habit of calling many persons of the house by their name, and very distinctly. It whistled five airs perfectly, from the bird-organ. The linnets have the advantage of singing all the year round, and they may be taught a variety of tricks, like the siskin, and the goldfinch.

The nest of the linnet is generally built in furze, or some other low bush, and is formed of moss and stalks of grass interwoven with wool, and lined with hair and feathers. In winter linnets assemble in large flocks, and descend to the sea-coasts, where they continue to reside, till spring again urges them to pair and seek their upland haunts. They feed upon the seeds of flax, thistle, dandelion, &c.

The *Siskins* are birds of passage, and fly so high that they may be heard before they are seen. They are very numerous in the southern provinces of Russia, and common enough in this country during the winter; they are fond of places where the alder-tree abounds. They arrive in France about the time of the vintage, then proceed farther south, and reappear when the trees are in flower; but in summer they are not seen. In all probability they then voyage northwards, or return into thick forests on the lofty mountains.

The siskins, in their habits, have very considerable relations with the linnet: they give a preference to the seeds of the alder-tree; they often dispute with the goldfinches for the seed of the thistle. Hempseed is for them an aliment of choice; but they appear, especially in captivity, to be greater consumers of it than they really are, from a habit which they have got of breaking more grains than they eat. In their passage in Germany, in October, they considerably damage the hop-grounds, by eating the seeds. In France, also, they do considerable prejudice to the apple-trees, by picking at the flowers. The song of the siskin is by no means disagreeable, but very inferior to that of the goldfinch; it is said to possess the faculty of imitating the song of the canary, linnet, &c. if taken very young, and placed within hearing of these birds, it has, moreover, a note of appeal peculiar to itself. Even when taken adult, it is easily tamed, and becomes almost as mild as a canary.

The *Citrel Finch* is found in all Italy, Greece, Turkey, Austria, Provence, Languedoc, Spain, Portugal, and sometimes in Lorraine. The male has an agreeable and varied song, but not so fine and clear as that of the canary. In Italy this species makes its nest not only in the country, but oftentimes in gardens on tufted trees, particularly on the cypress, and constructs it of wool, horse hair, and feathers. The eggs are four or five: the male easily pairs with the female canary, and the males have been found productive. The Count de Riocourt had for many years several of these males, which

description : the Martin, inferior in size to the former, and the tail much less forked ; it differs also in its nest, which is covered at top, while that of the house-swallow is open : and the Swift, rather larger than the house-swallow, with all the toes standing

coupled with female canaries, and the young produced new generations. The siskin, the goldfinch, and the linnet, are those respecting which the production of the female with the male canary is best authenticated. If mules are desired from these birds, they must be taken on the nest brought up by hand with the canaries, fed on the same aliment, and kept in the same aviary. The goldfinch, for example, which is generally chosen in preference, should be kept from hempseed, and accustomed, as soon as he is able to eat alone, to millet and rape-seed, the ordinary food of the canaries. Without this, a risk is run of losing one or the other, in changing their diet. If hempseed be suddenly taken from a goldfinch accustomed to it, to give him the ordinary food of canaries, the change will make him ill, and may cause his death. If, on the contrary, you leave him the hempseed, the female canary will eat so much of it, that she will get a fever, and probably die. What is said of the goldfinch is applicable to all other birds destined for the same purpose. It is also recommended, in the case of the goldfinch, to cut the extremity of his bill dexterously, for about the thickness of a halfpenny, or not quite so much. If some drops of blood should follow, there is no occasion for apprehension. It may be stanchd with a little saliva, mixed with pulverized sugar. This operation, however, should only be performed on those goldfinches whose bill is very pointed, which often happens in captivity. This is absolutely necessary, because this bird, pursuing the female, may wound her with his sharp bill, and prick the little ones in disgorging to them their food, which will destroy them. This inconvenience never takes place with goldfinches at liberty, for their bills are never so pointed, as the bills of the caged birds. If a female goldfinch is paired with a male canary, she should be two years old, for it is seldom that she lays in the first year. These birds, naturally wild, should be rendered as tame and familiar as the canaries, which may be accomplished by putting them in a low place, where there is plenty of company. It must not be imagined that all the mules which result from this alliance will be handsome. Of some, the plumage is of a very common kind, and the song very inferior. It would be useless to give any description of them, for they vary *ad infinitum*, and no description would suit any but the individual described. It is sufficient to say, that it is constantly observed that the mules resulting from these mixtures resemble the father in the head, tail, and limbs, and the mother in the rest of the body ; and that the mules which come from the male linnet and female canary, have neither the white colour of the mother, nor the red of the father, as some have pretended.

The union of canaries with siskins, whether males or females, requires less attention. It is enough to let loose one or many of these birds, but always of the same sex, in a chamber, or large aviary, with canaries, and they will soon be seen to couple. We have said, of the same sex, because when the sexes are different the birds will naturally prefer their own species. The goldfinch, on the contrary, will only pair with the canary in a cage ; to the linnet, greenfinch, and bullfinch, the cage and the aviary are

forward ; in which it differs from the rest of its kind. All these resemble each other so strongly ; that it is not without difficulty the smaller kinds are known asunder.

These are all known by their very large mouths, which, when

Indifferent. The commonest mules are produced from the linnet, the greenfinch, and the siskin, and the most esteemed of these, for song and beauty, are those from the male canary and a strange female. The mules from the greenfinch are in general of a bluish colour, and the males sing very badly, especially if the father be a greenfinch. The male mules from a linnet sing much better, but their plumage is very ordinary. Those of the siskin are small, and sing badly. Those from the bullfinch are susceptible of a perfect education, and their plumage is singular ; but this alliance rarely thrives. The male feeds, it is true, like the canary, and pays much attention to the female. But she dislikes and flies from him. His cry, and the opening of his wide bill, frightens her. It is necessary to choose a vigorous female or male, which has been brought up with bullfinches, and has never coupled with a bird of its own species.

To have fine mules and good singers, they should be of the race of the goldfinch. This bird should be chosen robust, gay, ardent in singing, and of a fine plumage. A goldfinch even taken in the net will couple, but he must at least have passed a month with the canaries, and be accustomed to their food from the moment he is taken ; for had he been previously fed on hempseed, and suddenly deprived of it, he would assuredly perish. After coupling, and when the young are produced, the goldfinch, whether cock or hen, should receive thistle-seed from time to time, for these birds are extremely fond of this seed, and it may be considered as their primitive and essential aliment in a wild state. Groundsel is also suitable to them, and may be substituted for the thistle-seed when the latter is not mature. If a linnet be chosen, it should be a male, for the experiment with a female is rarely successful. Chaffinches and buntings are extremely difficult to make unite with canaries. M. Vieillot says, that he knew but of one example of a female of these species having produced fruitful eggs with a male canary. From these facts it would appear that the siskin, male or female, will produce equally with the cock or hen canary ; that the hen canary produces easily with the goldfinch, less easily with the linnet ; that it can produce, but not easily, with the male chaffinch, bunting, greenfinch, and sparrow, and, very rarely, with the male bullfinch ; but the male canary will not produce easily, except with the female siskin, hardly with the goldfinch, and not at all with the others. It appears also, from observation, that of all birds coupled with the canary, the serinfinch, or green canary, as it is sometimes called, has the strongest voice, and is most vigorous and ardent for propagation. It would also appear that it is the only one whose mules are fertile, which argues a close affinity, if not identity, of species. The siskin and the goldfinch are neither so vigorous nor so vigilant.

The mules sing longer than the canaries, are of a more robust temperament, and their voice is stronger and more sonorous. But they learn foreign strains with greater difficulty, and always whistle them imperfectly. All the young mules should be placed under old canaries, of a fine voice, and

they fly, are always kept open; they are not less remarkable for their short slender feet, which scarcely are able to support the weight of their bodies; their wings are of immoderate extent for their bulk; their plumage is glossed with a rich purple; and

fond of singing, to instruct them, and serve as music masters. The same thing should be done with the young canaries.

It is pretended, that those bastard birds which come from the mixture of canaries with siskins, goldfinches, &c. are not sterile mules, but fertile mongrels, which can unite and produce not only with their paternal and maternal races, but also with each other, and give birth to fruitful individuals, the varieties of which may also mingle and be perpetuated. M. Vieillot tried experiments in this way, and used every possible means, for more than twenty years, without success. He also consulted in Paris a great number of amateurs, and of bird-dealers, who might be relied on, who sell every year a great number of mules from the goldfinch and hen canary, either born in Paris, or brought from Amiens, where the handsomest are bred; and all certified that these mules were unfruitful, and that they never knew an example of the contrary, in spite of the reiterated attempts which they had made every year, but to no purpose, to produce one. The male mule will, it is true, couple with the hen canary, and *vice versa*, and also bestow all the necessary attentions; but nothing but barren eggs is the consequence. The result is similar from the junction of the mules themselves, and it is the same with those which proceed from the linnet, the siskin, the greenfinch, and the bullfinch, and the same remark may be applied to birds of every other order, genus, and species. It is the same with the mules of the white or collared turtle dove and the common species, with those of the cock pheasant and the common hen, the duck of India and our domestic breed.

Of the other finches, we shall here notice the Chaffinch and the Mountain finch.

The Chaffinch.—The bill is of a pale blue, tipped with black; eyes hazel; the forehead black; the crown of the head, and the hinder part and sides of the neck, are of a bluish ash-colour; sides of the head, throat, fore-part of the neck, and the breast, are of a vinaceous red; belly, thighs, and vent white, slightly tinged with red; the back is of a reddish brown, changing to green on the rump; both the greater and lesser wing-coverts are tipped with white, forming two pretty large bars across the wing; the bastard wing and quill feathers are black, edged with yellow; the tail, which is a little forked, is black, the outermost feather edged with white; the legs are brown. The female wants the red upon the breast; her plumage in general is not so vivid, and inclines to green; in other respects it is not much unlike that of the male.

The Mountain-finch or Brambling.—Is a native of northern climates, where it spreads into various parts of Europe: it arrives in this country in the latter end of summer, and is the most common in the mountainous parts of our island. Vast flocks of them sometimes come together; they fly very close, and on that account great numbers of them are frequently killed at one shot. The length of this bird is somewhat above six inches. Bill yellow at the tip; eyes hazel; the feathers on the head, neck, and back, are

their note is a slight twittering, which they seldom exert but upon the wing.—This peculiar conformation seems attended with a similar peculiarity of manners. Their food is insects, which they always pursue flying. For this reason during fine weather, when

black, edged with rusty brown; sides of the neck, just above the wings, blue ash; rump white; the throat, fore-part of the neck, and breast, are of a pale orange; belly white; lesser wing-coverts black, tipped with pale yellow; quills dusky, with pale yellowish edges; the tail is forked, the outermost feathers edged with white, the rest black, with whitish edges, legs pale brown.

The *Bullfinch* belongs to the family of Grosbeaks. The primary character of the grosbeaks is that from which they are named. Their beak, in general, is extremely solid and powerful, and, except in the group of bullfinches, is conical and pointed. The tongue is also strong, and has a longitudinal furrow; the head is larger, and more fleshy than in the insectivorous birds in general; the internal toe is free, but the three exterior are connected at their base. Notwithstanding these distinctive peculiarities, there exists considerable difficulty in separating this group of birds from many others; a difficulty, indeed, not peculiar to them, but prevalent in every branch of zoology, whenever the natural method is attempted to be made the sole basis of arrangement.

The numerous species of the grosbeaks differ among themselves widely in habits and locality. Particular species are confined to particular countries; but the genus is spread over almost all moderate climates. The majority of them live in pairs only, solitary and silent; but others associate in flocks, and have a pleasing song. Some resort to the interior of woods, while others are found in the open country, in coppices, or in low and marshy situations; these construct their nests on the branches of elevated trees, or in the midst of thick bushes, while those commit their young to the shelter of some hole. In the nature of their aliment they seem more consistent. This, as is sufficiently indicated by the character of the bill, is composed principally of kernels and hard grains, from their facility in breaking which the word *coccothraustes* has been applied by Brisson, generally, to them all, though Gesner first used it, to distinguish the common species. The *Crossbills*, which are found in the northern countries of Europe and America, resemble the grosbeaks, and are supposed by some naturalists to be a species of that genus.

The *Bullfinch* is found in most parts of Europe frequenting woods and gardens. In a state of nature the bullfinch has but three cries, all of which are unpleasant: but if man deigns to instruct it methodically, and accustom it to finer, mellower, and more lengthened strains, it will listen with attention; and the docile bird, whether male or female, without relinquishing its native airs, will imitate exactly; and sometimes even surpass its master. "I know a curious person," says the author of the *Ædonologie*, "who, having whistled some airs quite plain to a bullfinch, was greatly surprised to hear the bird add such graceful turns, that the master could scarcely recognize his own music, and acknowledged that the scholar excelled him." It must, however, be confessed, that, if the bullfinch be ill directed, it acquires harsh strains. A friend of the Comte de Buffon's, saw one that had

the insects are most likely to be abroad, the swallows are for ever upon the wing, and seem pursuing their prey with amazing swiftness and agility. All smaller animals, in some measure, find safety by winding and turning, when they endeavour to avoid

never heard any person whistle but carters ; and it whistled like them, with the same strength and coarseness. The bullfinch also learns to articulate words and sentences ; and utters them with so tender an accent, that we might almost suppose it felt their force. These birds are also susceptible of personal attachment, which is often strong and durable.—Some have been known, after escaping and living a whole year in the woods, to recognize the voice of their mistress, and return to forsake her no more. Others have died of melancholy, on being removed from the first object of their attachment. They will also remember injuries received. A bullfinch that had been thrown to the ground in its cage by some of the rabble, though it did not appear much affected at the time, fell into convulsions ever afterwards at the sight of any mean-looking person, and expired in one of these fits eight months after its first accident.

Although this note has already extended to an unusual length, we are obliged here to notice the WIDOW-BIRDS. Such is the appellation of a handsome family of birds, found not only in Africa, but also in Asia, as far as the Philippine Islands. This name, which seems to suit them well enough, whether by reason of the black which predominates in their plumage, or their long sweeping tail, has, however, been given them through mistake. The Portuguese gave them the name of birds of *Whidha*, from a kingdom of Africa, where they are very common ; and the resemblance of this word to that signifying widow in the Portuguese language, proved a source of deception to foreigners, more especially as the latter name agreed so well with many characters of the birds. The females are never adorned with the long tail, and the males have it only during six months, which are not the same for all. With the young it appears to depend on the day of their birth ; with the adult, on the climate which they inhabit. The first moulting in which the males assume their bridal habits, and begin to sing, takes place in spring, and the second in autumn, or, to speak more correctly, at the epochs which correspond to those seasons in intertropical countries. After the last moulting, the males resemble the females so nearly, that they may be very easily confounded together, without that very accurate knowledge of them, which can only be obtained by frequent and almost habitual comparison. The females also undergo two moultings, but suffer no changes except that in growing old ; some are observed to assume colours almost similar to those of the male, during the season of reproduction.

The varied changes of plumage which take place during the year in this family of birds, is not less extraordinary than useful in pointing out to the ornithologist how careful he should be in not at all times depending on colour, or even the structure of the feathering, in descriptions of species. There is no doubt but in many instances these are good grounds of distinction, and when taken in conjunction with other specific marks, are generally of much use in characterizing species. In almost the whole of the feathered creation, considerable change of plumage takes place, from the young to the adult state ; and in many instances so great is this alteration

the greater, the lark thus evades the pursuit of the hawk, and man the crocodile. In this manner, insects upon the wing endeavour to avoid the swallow; but this bird is admirably fitted by nature to pursue them through their shortest turnings. Be-

that even the best ornithologists in Europe have described immature birds, in their various progressive approaches towards their perfect state, as animals of a different species. This has been more especially the case with birds of the vulture, eagle, and falcon tribes, and many others of the larger birds, most of which take from three to five, and even six years of arriving at the adult state; while the smaller birds usually reach maturity in one or two years. But in the instance of the Whidah Bunting, we have a bird exhibiting remarkable changes twice a-year.

A male of about four years of age, has been in the possession of Sir Patrick Walker, at Drumsheugh, near Edinburgh, for upwards of two years, which has afforded me an opportunity of watching its progress for fully two seasons, it having been thrice in its summer plumage since its arrival in Scotland.

The Whidah Bunting, like most other birds, moults twice a-year, and at two periods assumes so completely different an aspect, both in colour and structure of its feathering, that few would believe it to be the same bird. I have not been able to meet with an account of these periodical changes in its native haunts, and can therefore only describe them as they take place in this country, distinguishing them by the summer and winter plumage, although these terms but ill express the periods of the year in which the bird is in those distinct conditions; for it is about the 10th of November that what I term its "summer plumage" is in perfection; and about the 10th of June its winter garb is in full feather.

The moult in the Whidah Bunting takes place in a manner different from all other birds with which I am acquainted; for it may be said to be in a state of perpetual change, as feathers drop off during the whole year; and the colours of the bird gradually and imperceptibly deepen as it approaches towards the perfect state, and decrease in density when it has reached that point.

I may remark that this particular bird has, ever since its arrival at Drumsheugh, been in the most healthy condition, and its plumage has at all times exhibited every mark of the total absense of disease. In its first moulting there was considerable irregularity, arising, in all probability, from the constitution of the bird not having been yet adapted to this climate.

In 1828, it commenced its change on the 12th of August, and almost the whole feathers of the breast dropt off in one night, and were nearly as speedily replaced. It reached the perfect state on the 20th October; whereas last year an indication of change took place on the 16th July, when the feathers of the head became somewhat irregular, at which date the whole colour of the bird was darker than on the 10th June, which I consider the time of its perfect plumage. On the 19th, still greater indications of a change took place. On the 24th, almost all the throat feathers had fallen off, and were replaced by black ones, and the ferruginous pectoral feathers were bursting from their sheaths. Many of the cinereous feathers had fallen off from the back, and were replaced by black ones. On the 30th all the throat

sides a great length of wing, it is also provided with a long tail, which like a rudder, turns it in its most rapid motions ; and thus, while it is possessed of the greatest swiftness, it is also possessed of the most extreme agility.

feathers were replaced by black ones, and the pectoral feathers had given place to the ferruginous ones. From that period a progressive improvement took place in the long and middle tail feathers, which had just begun to appear, and they had reached their full length on the 10th November.

The Whidah Bunting is five inches and three quarters from the tip of the bill to the extremity of the tail ; and, in this state, is not unlike the common bunting of Britain, the bill is, however, stronger, and of a pale-bluish lead colour ; the irides dark hazel. When the first change of feathering has been effected, its general tone is a pale ash-colour, which gradually deepens till it becomes of a dark wood-brown, with black patches over different parts of the head, neck, and back ; a black stripe reaches from the bill to the nape, on each side, immediately over the eyes, with a double longitudinal row of black spots on the crown of the head ; the auricles are also black. The minorities of the wing with black patches at their base ; the primaries, secondaries, middle wing coverts, and remiges, deep black, with cinereous edges ; the middle and lateral tail feathers black, edged with pale wood-brown : from the pectus to the crissum the belly is pure white, deepening into wood-brown, towards the wings ; thighs white, legs, feet, and claws, pale skin-colour, which they preserve during the whole year. A precise description of the plumage, in its winter or summer garb, will not apply, during either of the periods of these moults, for, as above noticed, it is perpetually changing, so that my descriptions apply only to its perfect condition.

The summer attire, when perfect, has the head as low as the nape, chin, fore part of the throat and neck, wings, vent, and tail of a deep black ; the lower part of the neck or jugulum, bright orpiment-orange ; the breast or peltus vivid burnt terra-sienna, growing paler as it descends ; the belly or epigastrium, and tibia, white in the centre, inclining to orange, towards the wings ; the two middle tail feathers are four inches in length, placed vertically, one inch and a fourth broad, ending in a filamentary prolongation of the quills, an inch and a-half long, tipped with a small knob of feathers ; the two outer tail feathers are nine inches and a-half in length, and an inch and an eighth broad at their centre, gradually tapering towards each end, and terminating in a filament an inch and an eighth in length, with a knob at their tips. From the middle of the shafts of these last arise two long thread-like extremely flexible feathers, four and a-half inches in length ; the under tail feathers are four in number, two and a quarter inches long, black, with cinereous edges. The whole tail feathers are extremely glossy ; and strongly undulated, which is distinctly to be seen, and is very perceptible to the touch : which last character is peculiar to all the feathers of the bird, but not so evident without the assistance of a lens. The bill undergoes considerable change in the summer and winter plumage, both in shape and colour, which is produced by exfoliation, being deep bluish-black in summer and pale lead colour in winter.

The female Whidah Bunting, when young, has much the appearance of

Early, therefore, in the spring when the returning sun begins to rouse the insect tribe from their annual state of torpidity; when the gnat and the beetle put off their earthly robes, and venture into air; the swallow then is seen returning from its long migration beyond the ocean, and making its way feebly to the shore. At first, with the timidity of a stranger, it appears but seldom, and flies but slowly and heavily along. As the weather grows warmer, and its insect supply increases, it then gathers greater strength and activity. But it sometimes happens that a rainy season, by repelling the insects, stints the swallow in its food; the poor bird is then seen slowly skimming along the surface of the ground, and often resting after a flight of a few minutes. In general, however, it keeps on the wing, and moving with a rapidity that nothing can escape. When the weather promises to be fair, the insect tribe feel the genial influence, and make bolder flights; at which time the swallow follows them in their aerial journeys, and often rises to imperceptible heights in the pursuit. When the weather is likely to be foul, the insects feel the first notices of it; and from the swallow's following low we are often apprized of the approaching change.*

the male bird in its winter dress, but considerably deeper in the tone of its plumage, which annually becomes darker till it arrives at its mature age, which is said to be four years. Like the male, it also undergoes considerable change in its summer and winter moults; in the latter state being of a dark rusty brown, with patches of black on the head, neck, and back; and, in its summer garb, is of deep blackish-brown, without any patches of black, but considerably lighter on the belly. It is always destitute of the long tail feathers, like the male.

This remarkable species is a native of Africa, and is said to be common at Mongolia, Angola, and the neighbourhood of Fort Whidah, in which last locality it abounds, and in consequence has derived its name. It has no song, but utters a sharp and clear chirp, not unlike that of the common bunting of Great Britain before rain. It is a lively and active bird, seldom resting above a few seconds in one place or position during the day.

* The swallows common to Britain are the *Chimney Swallow*, which has naked feet, while the feet of its congeners are downy, and which builds generally in the inside of chimneys—the *Martin* or *Window Swallow*—and the *Sand Martin* or *Sandy-bank Swallow*.

The swallow is a general favourite. He comes to us when nature is putting on her most smiling aspect, and he stays with us through the months of sunshine and gladness. "The swallow," says Sir H. Davy, "is one of my favourite birds, and a rival of the nightingale; for he glads my sense of seeing, as much as the other does my sense of hearing. He is the joyous prophet of the year, the harbinger of the best season; he lives a life of enjoyment amongst the loveliest forms of nature; winter is unknown to him,

When summer is fairly begun, and more than a sufficient supply for sustaining the wants of nature every where offers, the swallow then begins to think of forming a progeny. The nest is built with great industry and art, particularly by the common

and he leaves the green meadows of England in autumn, for the myrtle and orange groves of Italy, and for the palms of Africa."

The sentiment is from Anacreon, and it is worthy of the joyousness of the old Grecian.

"Gentle bird! we find thee here
When Nature wears her summer vest;
Thou com'st to weave thy simple nest;
And when the chilling winter lowers,
Again thou seek'st the genial bowers
Of Memphis, or the shores of Nile,
Where sunny hours of verdure smile."

The places which the swallow loves are consecrated, too, by our great dramatic poet, in one of his most characteristic passages, in which, after the turmoil of dark passions, the mind is for a moment relieved by the contrast of pure feelings, clothed in the most exquisite language.

"This guest of summer,
The temple-haunting martlet, does approve
By his lov'd mansionry, that the heaven's breath
Swells wooingly here: no jetty, frieze, buttress,
Nor coign of vantage, but this bird hath made
His pendant bed, and procreant cradle: where they
Most breed and haunt, I have observed, the air
Is delicate."

But the attractions of poetry are not required to give a charm to the "loved mansionry" of this delightful bird.

It is the voice of innocent gladness; the bird is happy, as it seems to us, because it is constantly active in its proper duties. The swallow's nest, though it may appear to deform the trim mansion, is seldom disturbed, even though the old pious feeling towards the bird has passed away. A writer in the 'Gentleman's Magazine' says, "for my part I am not ashamed to own, that I have tempted window-swallows to build round my house, by fixing scollop shells in places convenient for their 'pendant beds and procreant cradles;' and have been much pleased in observing with what caution the little architect raises a buttress under each shell, before he ventures to form his nest on it."

Some less poetical however, it would appear, have a dislike to the window-swallow, and have even gone so far as to endeavour to banish it by preventing it from building. In this vein, we are instructed, by a recent periodical writer, how to discard them. It appears, he says, from experiment made at Granton, that if the places in the corners of windows and under eaves where the swallows build, are well rubbed with oil and soft soap

swallow, which builds it on the tops of chimneys. The martin sticks it to the eaves of houses. The goatsucker, as we are told, builds it on the bare ground. This nest is built with mud from some neighbouring brook, well tempered with the bill, moist-

they will not be able to make their clay adhere to the wall, and being once foiled, they will not renew their attempt for some years afterwards.

The Anglo-Americans have many contrivances for enticing birds to build near their houses. Being peculiarly partial to the barn-swallow, they fix up boxes for it to nestle in. This species is considerably different from our chimney swallow, and is of a bright chesnut colour on the belly and vent, where ours is pure white; but it resembles it in its habits of nestling on the rafters or beams of sheds, barns, and other outhouses, though not in chimneys.

Wilson has given some interesting characteristic traits in the history of this bird. "On the 16th of May," says he, "being on a shooting expedition on the top of Pocano mountain, Northampton, when the ice on that and on several successive mornings was more than a quarter of an inch thick, I observed with surprise a pair of these swallows which had taken up their abode on a miserable cabin there. It was about sunrise, the ground was white with hoar-frost, and the male was twittering on the roof by the side of his mate with great sprightliness. The man of the house told me, that a single pair came regularly there every season, and built their nest on a projecting beam under the eaves, about six or seven feet from the ground. At the bottom of the mountain, in a large barn belonging to the tavern there, I counted upwards of twenty nests, all seemingly occupied. In the woods they are never met with; but as you approach a farm they soon catch the eye, cutting their gambols in the air. Scarcely a barn, to which these birds can find access, is without them; and as public feeling is universally in their favour, they are seldom or never disturbed. The proprietor of the barn last mentioned, a German, assured me, that if a man permitted swallows to be shot, his cows would give bloody milk, and also, that no barn where swallows frequented would ever be struck with lightning.

"Early in May," continues Wilson, "they begin to build. From the size and structure of the nest, it is nearly a week before it is completely finished. One of these nests, taken on the 21st of June from the rafter to which it was closely attached, is now lying before me. It is in the form of an inverted cone, with a perpendicular section cut off on that side by which it adhered to the wood. At the top, it has an extension of the edge or offset, for the male or female to sit on occasionally, as appeared by the dung; the upper diameter was about six inches by five, the height externally seven inches. This shell is formed of mud, mixed with fine hay, as plasterers do their mortar with hair, to make it adhere the better; the mud seems to have been placed in regular strata or layers, from side to side; the hollow of this cone (the shell of which is about an inch in thickness) is filled with fine hay, well stuffed in; above that is laid a handful of very large downy geese feathers. Though it is not uncommon for twenty and even thirty pair to build in the same barn, yet every thing seems to be conducted with great order and affection; all seems harmony among them, as if the interest of each were that of all. Several nests are often within a few inches of each other; yet no

ened with water, for the better adhesion ; and still farther kept firm, by long grass and fibres : within it is lined with goose-feathers, which are ever the warmest and the neatest. The martin covers its nest at top, and has a door to enter at ; the

appearance of discord or quarrelling takes place in this peaceful and affectionate community." Wilson was in error when he supposed that the chimney-swallow is distinguished from his barn-swallow by never building in barns and outhouses. In Scotland, on the contrary, these are its chosen haunts, and there it more rarely builds in chimneys than in England. In Sweden it is the same, and hence it is called the Barn-swallow (*Ladu sveala*) ; while in the south of Europe, where chimneys are rare, it builds in gateways, porches, and galleries, or against the rafters of outhouses, as in Virgil's time :

“ ——— Ante

Garrula quam tignis nidum suspendat hirundo. ”

When a chimney is selected, it seems to prefer one where there is a constant fire, most probably for the sake of warmth. “ Not,” remarks White, “ that it can subsist in the immediate shaft, where there is a fire, but prefers one adjoining to that of the kitchen, and disregards the perpetual smoke of that funnel, as I have often observed with some degree of wonder. Five or six or more feet down the chimney, does this little bird begin to form her nest about the middle of May, which consists, like that of the window-swallow, of a crust or shell composed of dirt or mud, mixed with short pieces of straw to render it tough and permanent ; with this difference, that whereas the shell of the former is nearly hemispheric, that of the latter is open at the top, and like half a deep dish : this nest is lined with fine grasses and feathers, which are often collected as they float in the air. Wonderful is the address which this adroit bird shows all day long in ascending and descending with security through so narrow a pass. When hovering over the mouth of the funnel, the vibrations of her wings, acting on the confined air, occasion a rumbling like thunder. It is not improbable that the dam submits to this inconvenient situation, so low in the shaft, in order to secure her broods from rapacious birds, and particularly from owls, which frequently fall down chimneys, perhaps in attempting to get at these nestlings.” It might not be readily supposed that a bird, thus building in an elevated chimney, would have thought of going under ground for a nestling place ; yet they very commonly build in the shafts of coal-pits.

The window-swallow is no less celebrated than the chimney-swallow, for selecting singular situations. M. Hebert saw a pair build on the spring of a bell, the bottom of the nest resting on the spring, while the upper semicircular brim leaned against the wall by its two ends, three or four inches below the eave. The two birds, during the time they were employed in the construction, passed the nights on the iron spike to which the spring was fastened. The frequent concussion given by the spring could not fail to disturb the action of nature in the development of the young, and the hatch, accordingly, did not succeed ; yet would not the pair forsake their tottering mansion, but continued to inhabit it for the rest of the season. The semicircular form, which on this occasion was given to the nest, proves

swallow leaves hers quite open. But our European nests are nothing to be compared with those the swallow builds on the coasts of China and Coromandel; the description of which I will give in the plain honest phrase of Willoughby. "On the

that these birds can, upon occasion, change the usual arrangement of their architecture.

Another pair, mentioned by Bingley, built for two successive seasons on the handles of a pair of garden-shears, which had been stuck up against the boards in an outhouse. A still more singular instance is recorded of another pair, which built their nest on the wings and body of a dead owl, hung up on the rafter of a barn, and so loose as to be moved by every gust of wind. This owl, with the nest on its wings, and the eggs in the nest, was brought as a curiosity to the museum of Sir Ashton Lever, who, struck with the oddity of the thing, desired a large shell to be fixed up where the owl had hung; and the following season a nest, as had been anticipated, was built there, and was transmitted to the Leverian museum as a companion to the owl.

The chimney-swallow differs from the window-swallow, according to Montbeillard, in not occupying the same nest more than one season, building annually a new nest, and, if the spot admits it, fixing it above that occupied the preceding year. "I have found them," says he, "in the shaft of a chimney, thus ranged in tiers, and have counted four, one above another, and all of equal size, plastered with mud mixed with straw and hair. There were some of two different sizes and shapes,—the largest resembled a shallow half-cylinder, open above, a foot in height, and attached to the sides of the chimney; the smallest were stuck in the corners of the chimney, forming only a fourth of a cylinder, or almost an inverted cone. The first nest, which was the lowest, had the same texture at the bottom as at the sides; but the two upper tiers were separated from the lower by their lining only, which consisted of straw, dry herbs, and feathers. Of the small nests, built in the corners, I could find only two in tiers, and I inferred that they were the property of young pairs, as they were not so compactly built as the larger ones.

In habits, instincts, appearance, and migration, the *Swift* resembles the Swallow. The common Swift is seldom seen in the northern parts of England before the end of May, or the beginning of June; in the south it arrives a week or two earlier. It leaves us again for warmer climates in August, a month or six weeks previous to the departure of the swallows. In this country it haunts cathedrals, towers, churches, and other buildings not constantly inhabited, in the holes, and under the eaves of which it finds a safe retreat, and proper situation to build in.—The nest is formed of straw and other suitable materials, which it collects with great dexterity in its flight. It never alights on the ground, as it is unable to rise from a flat surface.

The *Goatsuckers* are so named from a most absurd notion, that they suck the mammæ of goats, a notion which may perhaps have originated in the enormous depth and aperture of the gape. This vulgarism is by no means modern, for it appears, by the Greek appellative, to have existed in the time of Aristotle, though it seems probable, that the first application of the name

sea-coast of the kingdom of China," says he, "a sort of party-coloured birds, of the shape of swallows, at a certain season of the year, which is their breeding time, come out of the midland country to the rocks, and from the foam or froth of the sea-

might have had rather a figurative than a literal meaning. Many of the insectivorous birds, it is true, are found frequently near the persons of cattle and sheep while grazing—for the purpose, doubtless, of preying on the numerous insects which feed on the excretions from these animals: but this habit is common to many genera of birds, and gives no reasonable support to the notion in question, which is incompatible with the organization of the whole class.

These birds are inhabitants of Europe, and, indeed, are found in almost all parts of the world; but they are rare here, and more so in appearance than reality, from their crepusculous habits. It is in the new world, especially South America, that they most abound, and are divisible into many species. Asia, and New Holland, moreover, are not without them.

Unfitted, like the owls, for full day-light, the Goatsuckers hide themselves in some obscure retreat. Twilight is their short period of activity, but the rapidity of their flight, and the size of the mouth, enable them to make the most of this limited time in procuring food. They devote no time to nidification, but deposit their eggs in simple concavities on the ground, and thus the time necessary for the two great objects of animal existence, self-support and propagation, are proportioned to the comparative short periods of their activity. In the day, they sometimes utter a plaintive cry, repeated rapidly three or four times, and indicative of the then negative character of their desires, for they seem to want nothing but retirement and repose.

The *European Goatsucker* is the only species known here. This bird has received a variety of popular names, which have been, many of them, adopted by naturalists. Such as flying-toad, square-tailed swallow, night-raven, night-hawk, dorr-hawk, churn and fern owl, &c. Its food, mode of taking it, and style of flying caused it to receive the name of square-tailed swallow.

This bird is solitary; two of them are rarely seen together, and even then they preserve a tolerable distance from each other. It frequents mountains and plains, almost always conceals itself under a bush, or in the young coppices, and seems to give the preference to dry and stony soils, and those which are covered with briars. Its mode of perching differs from that of other birds; it fixes itself longitudinally on the branch, which it seems to tread like the cock. It is difficult to be perceived, when in this position, from the dulness of its colours, and their approximation to that of the branches. It is when thus situated that it principally utters its peculiar cry, which, having some resemblance to that of a toad, has gained for it, in France, the popular name of *crapaud-volant*. This cry is a plaintive sort of sound, repeated three or four times in succession. The noise which it makes in flying is dissimilar, and, according to some, is a cry of another kind. But, according to others, it is caused by the air, which it engulphs in its large throat, since it flies with its mouth open, which produces a humming noise, like to that of a spinning-wheel. This opinion seems probable,

water, dashing against the bottom of the rocks, gather a certain clammy glutinous matter, perchance the spawn of whales and other young fishes, of which they build their nests, wherein they lay their eggs and hatch their young. These nests the Chinese pluck from the rocks, and bring them in great numbers into the East Indies to sell. They are esteemed, by gluttons, as great delicacies ; who, dissolving them in chicken or mutton broth, are very fond of them ; far before oysters, mushrooms, or other dainty and liquorish morsels." What a pity this luxury hath not been introduced among us, and then our great feasters might be enabled to eat a little more ! *

especially if it be true, as is asserted, that the sound varies according to the different degrees of velocity in the flight.

This demi-nocturnal bird never quits its retreat but towards twilight ; or, if it ever do so, it is only in sombre and cloudy weather, for it is dazzled by a strong light. The feeblest degree of light suits it best. If it happen to be disturbed and roused on a fine day, its flight is low and uncertain. The reverse, however, is altogether the case after the setting of the sun. It is then quite lively, and active in its flight, which is necessarily irregular, like that of the winged insects which constitute its prey, and which it can only seize by short and rapid zigzags.

It feeds on insects, especially those of the nocturnal kind, as beetles, cockchafers, moths, &c. It will also eat wasps, drones, &c. It has been observed, that this bird has no occasion to close its bill to secure the insects, the interior being provided with a kind of glue, which appears to come from the upper part, and which is sufficient to retain them. This bird has one habit peculiar to itself ; it will make, about one hundred times, in succession, the circuit of a large leafless tree, with an irregular and very rapid flight. And from time to time, it will drop abruptly down, as if to fall upon its prey, and then suddenly rise again in the same manner. At such times it is exceedingly difficult to bring it within range of shot, for on the advance of the fowler, it disappears so rapidly, that it is impossible to discover the place of its retreat.

* All authors are agreed on the estimation in which the Chinese, and other Asiatics, hold the nests of the swallow, called *Salangana*, as a delicacy of the table ; but they differ much as to their composition. According to some, the substance of these nests is a sort of froth of the sea, or of the spawn of fish, which is strongly aromatic, though others assert that it has no taste at all ; some pretend that it is a kind of gum, collected by the birds on the tree called *Calumbone* ; others, a viscous humour, which they discharge through the bill at the season of reproduction. The commercial history of these singular nests is much better understood than their composition, in consequence of their reputed virtue as a restorative. The best account of them which we have met with is given by Mr Crawford. "The best nests," he says, "are those obtained in deep, damp caves, and such as are taken before the birds have laid their eggs. The coarsest are those obtained after the young have been fledged. The finest nests are the whitest ;

The swallow usually lays from five to six eggs, of a white colour, speckled with red; and sometimes breeds twice a year. When the young brood are excluded, the swallow supplies them very plentifully, the first brood particularly, when she finds her-

that is, those taken before the nest has been rendered impure by the food and faeces of the young birds. The best are white, and the inferior dark-coloured, streaked with blood, or intermixed with feathers. It may be remarked, however, that some of the natives describe the purer nests as the dwelling of the cock-bird, and always so designate them in commerce. Birds' nests are collected twice a-year; and, if regularly collected, and no unusual injury be offered to the caverns, will produce very equally, the quantity being very little, if at all, improved by the caves being left altogether unmolested for a year or two. Some of the caverns are extremely difficult of access, and the nests can only be collected by persons accustomed from their youth to the office. The most remarkable and productive caves in Java, of which I superintended a moiety of the collection for several years, are those of Karang-bolang, in the province of Baglen, on the south coast of the island. There the caves are only to be approached by a perpendicular descent of many hundred feet, by ladders of bamboo and ratan, over a sea rolling violently against the rocks. When the mouth of the cavern is attained, the perilous office of taking the nests must often be performed with torch-light, by penetrating into recesses of the rock, when the slightest trip would be instantly fatal to the adventurers, who see nothing below them but the turbulent surf making its way into the chasms of the rock. The only preparation which the birds' nests undergo is that of simple drying, without direct exposure to the sun, after which they are packed in small boxes, usually of a picul, (about 135 pounds.) They are assorted for the Chinese market into three kinds, according to their qualities, distinguished into first or best, second, and third qualities. Caverns that are regularly managed will afford, in 100 parts, 53 3-10th parts of those of the first quality, 35 parts of those of the second, 11 7-10th parts of those of the third. The common prices for birds' nests at Canton are, for the first sort, 3,500 Spanish dollars the picul, or 5*l.* 18*s.* 1½*d.* per pound; for the second, 2,800 Spanish dollars per picul; and, for the third, no more than 1,600 Spanish dollars. In the Chinese markets a still nicer classification of the edible nests is often made than in the island. The whole are frequently divided into three great classes, under the commercial appellation of Paskat, Chikat, and Tung-tung, each of which, according to quality, is subdivided into three inferior orders, and we have, consequently, prices varying from 1,200 Spanish dollars per picul to 4,200. These last, therefore, are more valuable than their weight of silver. Of the quantity of birds' nests exported from the Indian islands, although we cannot state the exact amount, we have data for hazarding some probable conjectures respecting it. From Java there are exported about 200 piculs, or 27,000 lbs., the greater part of which is of the first quality. The greatest quantity is from the Suluk Archipelagos, and consists of 530 piculs. From Macassar there are sent about 30 piculs of the fine kind. These data will enable us to offer some conjectures respecting the whole quantity; for the edible swallows' nests being universally and almost equally diffused from Junk, Ceylon, to New Guinea,

self capable of producing two broods in a year. This happens when the parents come early, when the season is peculiarly mild, and when they begin to pair soon. Sometimes they find a difficulty in rearing even a single nest, particularly when the weather has been severe, or their nests have been robbed in the beginning of the season. By these accidents, this important task is sometimes deferred to the middle of September.

At the latter end of September they leave us ; and for a few days previous to their departure assemble in vast flocks, on house-tops, as if deliberating on the fatiguing journey that lay before

and the whole produce going to one market, and only by one conveyance, the junks, it is probable that the average quantity taken by each vessel is not less than the sum taken from the ports just mentioned. Taking the quantity sent from Batavia as the estimate, we know that this is conveyed by 5,300 tons of shipping, and, therefore, the whole quantity will be 4,818 piculs, or 242,400 lbs., as the whole quantity of Chinese shipping is 30,000 tons. In the Archipelago, at the prices already quoted, this property is worth 1,263,519 Spanish dollars, or 284,290*l*. The value of this immense property to the country which produces it, rests upon the capricious wants of a single people. From its nature, it necessarily follows that it is claimed as the exclusive property of the sovereign, and everywhere forms a valuable branch of his income, or of the revenue of the state. This value, however, is, of course, not equal ; and depends upon the situation and the circumstances connected with the caverns in which the nests are found. Being often in remote and sequestered situations, in a country so lawless, a property so valuable and exposed is subject to the perpetual depredations of freebooters ; and it not unfrequently happens that an attack upon them is the principal object of the warfare committed by one petty state against another. In such situations, the expense of affording them protection is so heavy, that they are necessarily of little value. In situations where the caverns are difficult of access to strangers, and where there reigns enough of order and tranquillity to secure them from internal depredation, and to admit of the nests being obtained without other expense than the simple labour of collecting them, the value of the property is very great. The caverns of Karang-bolang, in Java, are of this description. These annually afford 6,810 lbs. of nests, which are worth, at the Batavia prices of 3,200, 2,500, and 1,200 Spanish dollars the picul, for the respective kinds, nearly 139,000 Spanish dollars ; and the whole expense of collecting, curing, and packing, amounts to no more than 11 per cent. on this account. The price of birds' nests is of course a monopoly price, the quantity produced being by nature limited and incapable of being augmented. The value of the labour expended in bringing birds' nests to market is but a trifling portion of their price, which consists of the highest price which the luxurious Chinese will afford to pay for them, and which is a tax paid by that nation to the inhabitants of the Indian islands. There is, perhaps, no production upon which human industry is exerted, of which the cost of production bears so small a proportion to the market price."—*Crawford's Indian Archipelago*.

them. This is no slight undertaking, as their flight is directed to Congo, Senegal, and along the whole Morocco shore. There are some, however, left behind in this general expedition, that do not depart till eight or ten days after the rest. These are chiefly the latter weakly broods, which are not yet in a condition to set out. They are sometimes even too feeble to venture till the setting in of winter; while their parents vainly exhort them to efforts which instinct assures them they are incapable of performing. Thus it often happens that the wretched little families, being compelled to stay, perish the first cold weather that comes; while the tender parents share the fate of their offspring, and die with the new-fledged brood.

Those that migrate are first observed to arrive in Africa, as Adanson assures us, about the beginning of October. They are thought to have performed their fatiguing journey in the space of seven days. They are sometimes seen, when interrupted by contrary winds, wavering in their course far off at sea, and lighting upon whatever ship they find in their passage. They then seem spent with famine and fatigue; yet still they boldly venture, when refreshed by a few hours rest, to renew their flight, and continue the course which they had been steering before.

These are facts proved by incontestable authority; yet it is a doubt whether all swallows migrate in this manner, or whether there may not be some species of this animal that, though externally alike, are so internally different as to be very differently affected by the approach of winter. We are assured from many, and these not contemptible witnesses, that swallows hide themselves in holes under ground, joined close together, bill against bill, and feet against feet. Some inform us, that they have seen them taken out of the water, and even from under the ice, in bunches, where they are asserted to pass the winter, without motion. Reaumur, who particularly interested himself in this inquiry, received several accounts of bundles of swallows being thus found in quarries, and under the water. These men, therefore, have a right to some degree of assent, and are not to lose all credit from our ignorance of what they aver.

All, however, that we have hitherto dissected, are formed within like other birds; and seem to offer no observable variety. Indeed, that they do not hide themselves under water, has been pretty well proved by the noted experiment of Frisch, who tied

several threads, dyed in water-colours, round the legs of a great number of swallows that were preparing for their departure; these, upon their return the ensuing summer, brought their threads back with them, no way damaged in their colour; which they most certainly would, if, during the winter, they had been steeped in water: yet still this is a subject on which we must suspend our assent, as Kleim, the naturalist, has brought such a number of proofs in defence of his opinion, that swallows are torpid in winter, as even the most credulous must allow to have some degree of probability.

CHAP. VI.

THE HUMMING-BIRD, AND ITS VARIETIES.

HAVING given some history of the manners of the most remarkable birds of which accounts can be obtained, I might now go to a very extensive tribe, remarkable for the splendour and the variety of their plumage: but the description of the colours of a beautiful bird, has nothing in it that can inform or entertain; it rather excites a longing, which it is impossible for words to satisfy. Naturalists, indeed, have endeavoured to satisfy this desire by coloured prints; but, beside that these at best give only a faint resemblance of nature, and are a very indifferent kind of painting, the bird itself has a thousand beauties that the most exquisite artist is incapable of imitating. They, for instance, who imagine they have a complete idea of the beauty of the little tribe of manikin birds, from the pictures we have of them, will find themselves deceived, when they compare their draughts with nature. The shining greens, the changeable purples, and the glossy reds, are beyond the reach of the pencil; and very far beyond the coloured print, which is but a poor substitute to painting. I have therefore declined entering into a minute description of foreign birds of the sparrow kind; as sounds would never convey an adequate idea of colours.

There is one species, however, that I will conclude the history of this class with; as, though the least, it will certainly be

allowed the most beautiful of all others. In quadrupeds, the smallest animals are noxious, ugly, and loathsome; the smallest of birds are the most beautiful, innocent, and sportive. Of all those that flutter in the garden, or paint the landscape, the humming-bird is the most delightful to look upon, and the most inoffensive.

Of this charming little animal there are six or seven varieties, from the size of a small wren down to that of an humble-bee. A European could never have supposed a bird existing so very small, and yet completely furnished out with a bill, feathers, wings, and intestines, exactly resembling those of the largest kind. A bird not so big as the end of one's little finger would probably be supposed but a creature of imagination, were it not seen in infinite numbers, and as frequent as butterflies in a summer's day, sporting in the fields of America, from flower to flower, and extracting their sweets with its little bill.

The smallest humming-bird is about the size of a hazel-nut. The feathers on its wings and tail are black; but those on its body, and under its wings, are of a greenish brown, with a fine red cast, or gloss, which no silk or velvet can imitate. It has a small crest on its head, green at the bottom, and, as it were, gilded at the top; and which sparkles in the sun like a little star in the middle of its forehead. The bill is black, straight, slender, and of the length of a small pin. The larger humming-bird is near half as big as the common wren, and without a crest on its head; but, to make amends, it is covered, from the throat half way down the belly, with changeable crimson-coloured feathers, that, in different lights, change to a variety of beautiful colours, much like an opal. The heads of both are small, with very little round eyes, as black as jet.

It is inconceivable how much these add to the high finishing and beauty of a rich luxurious western landscape. As soon as the sun is risen, the humming-birds, of different kinds, are seen fluttering about the flowers, without ever lighting upon them. Their wings are in such rapid motion, that it is impossible to discern their colours, except by their glittering. They are never still but continually in motion, visiting flower after flower, and extracting its honey as if with a kiss. For this purpose they are furnished with a forked tongue, that enters the cup of the flowers, and extracts its nectared tribute. Upon this alone

they subsist.* The rapid motion of their wings brings out a humming sound, from whence they have their name; for whatever divides the air swiftly, must thus produce a murmur.

The nests of these birds are not less curious than the rest; they are suspended in the air, at the point of the twigs of an orange, a pomegranate, or a citron-tree; sometimes even in houses, if they find a small and convenient twig for the purpose. The female is the architect, while the male goes in quest of materials; such as cotton, fine moss, and the fibres of vegetables. Of these materials a nest is composed, of about the size of a hen's egg cut in two, admirably contrived, and warmly lined with cotton. They lay two eggs at a time, and never more, about the size of small peas, and as white as snow, with here and there a yellow speck. The male and the female sit upon the nest by turns; but the female takes to herself the greatest share. She seldom quits the nest, except a few minutes in the morning and evening, when the dew is upon the flowers, and their honey in perfection. During this short interval, the male takes her

* From the circumstance of humming-birds frequenting flowers, and thrusting their needle-formed bills into the blossoms, as bees and butterflies do their suckers (haustella), it has hastily been concluded by naturalists, that, like these insects, they feed on honey. But if such naturalists had paused for a moment to consider the form of the bill and the tongue in the trochilidæ, their conclusions would not perhaps have been so hasty. The trophi of insects which feed on the honey of flowers, are beautifully adapted for procuring it by suction, which is commonly indispensable, the honey being in most cases spread thinly over the surface of the nectary or the ungulæ of the petals, and not in quantities such as it might be drunk like water. Now it is a fact, which is or may be well known, that birds have almost no power of suction, in consequence of the narrowness and rigidity of their tongue, as may be seen when they drink, having to hold up their heads and depend upon the weight of the water for transmitting it into the craw. Nobody, as far as we know, has described the humming-bird drinking the honey from flowers in this manner, and indeed its tenacity and glutinous nature would entirely preclude this. Such reasons would dispose us, therefore, to conclude, that the trochilidæ do not feed on honey, though we did not possess irresistible proofs of the fact, that they feed on insects.

Wilson, the distinguished author of the American Ornithology, found, upon repeated dissection, that the trochilus colubris had a quantity of insects in its stomach, either whole or in fragments; and the eccentric Water-ton affirms that humming-birds feed on insects. Of course, they frequent flowers not for their honey, but to prey upon the insects which are in pursuit of this honey. Were the requisite scrutiny gone into, it is probable that we should find all Latham's "Flower-eaters" (*anthophagi*) and Temminck's Nectariniæ exclusively feeding on insects.—*J. Rennie.*

place; for, as the egg is so small, the exposing it ever so short a time to the weather would be apt to injure its contents, the surface exposed being so great in comparison to the bulk. The time of incubation continues twelve days; at the end of which the young ones appear, much about the size of a blue-bottle fly. They are at first bare; by degrees they are covered with down; and at last feathers succeed, but less beautiful at first than those of the old ones.

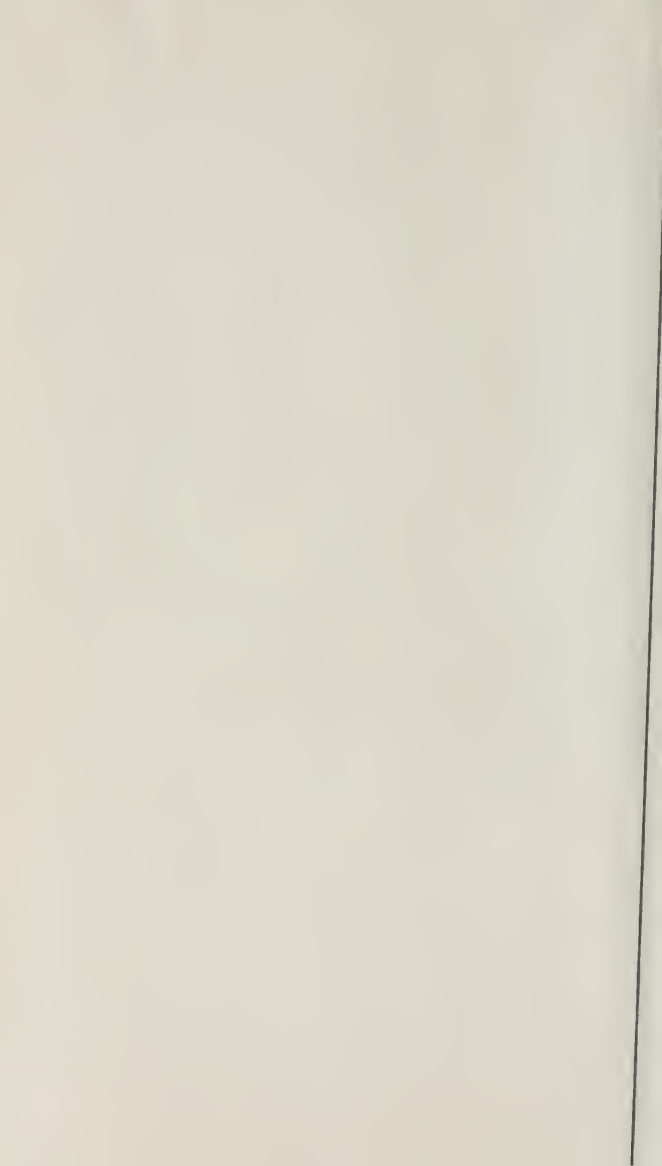
“Father Labat’s companion in the mission to America, found the nest of a humming-bird, in a shed that was near the dwell-house, and took it in at a time when the young ones were about fifteen or twenty days old; he then placed them in a cage at his chamber-window, to be amused by their sportive flutterings; but he was soon surprised to see the old ones, that came and fed their brood regularly every hour in the day. By these means they themselves soon grew so tame that they seldom quitted the chamber; but without any constraint came to live with their young ones. All four have frequently come to perch upon their master’s hand, chirruping as if they had been at liberty abroad. He fed them with a very fine clear paste, made of wine, biscuit, and sugar; they thrust their tongues into this paste, till they were satisfied, and then fluttered and chirruped about the room. I never beheld any thing more agreeable,” continues he, “than this lovely little family that had taken possession of my companion’s chamber, and that flew out and in just as they thought proper; but were ever attentive to the voice of their master, when he called them. In this manner they lived with him for above six months; but at a time when he expected to see a new colony formed, he unfortunately forgot to tie up their cage to the ceiling at night to preserve them from the rats, and he found they were devoured in the morning.”

These birds on the continent of America, continue to flutter the year round; as their food, which is the honey of flowers, never forsakes them in those warm latitudes where they are found. But it is otherwise in the islands of the Antilles, where, when the winter season approaches, they retire, and, as some say, continue in a torpid state during the severity of that season. At Surinam and Jamaica, where they constantly have flowers, these beautiful birds are never known to disappear.

It is a doubt whether or not these birds have a continued note

of singing. All travellers agree, that, beside the humming noise produced by their wings, they have a little interrupted chirrup; but Labat asserts, that they have a most pleasing melancholy melody in their voices, though small, and proportioned to the organs which produce it. It is very probable that, in different places, their notes are also different; and as there are some that continue torpid all the winter, there may likewise be some with agreeable voices, though the rest may in general be silent.

The Indians formerly made great use of this bird's plumage, in adorning their belts and head-dress. The children take them in the fields upon rings smeared with bird-lime: they approach the place where the birds are flying, and twirling their rings in the air, to allure them, either by the colour or the sound, that the simple little creature comes to rest upon the ring, and is seized. They are then instantly killed and gutted, and hung up in the chimney to dry. Those who take greater care, dry them in a stove, which is not so likely to injure the plumage as the foregoing method. Their beautiful feathers were once the ornament of the highest rank of savage nobility; but at present they take the bird rather for the purpose of selling it as a curiosity to the Europeans, than that of ornament for themselves. All the taste for savage finery is wearing out fast, even among the Americans. They now begin to adopt, if not the dresses of Europe, at least the materials of which they are composed. The wandering warrior is far from thinking himself fine at present with his bow and his feathered crown: his ambition reaches to higher ornaments; a gun, a blue shirt, and a blanket.





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